

## Anderson Named New VP

Lawrence Anderson will become Vice President of Component Development 2000, effective Aug. 19. Mr. Anderson has been Director of Electronic Components and Subsystems Laboratory, AT&T Bell Laboratories. He will succeed John Galt, who is retiring Sept. 30.

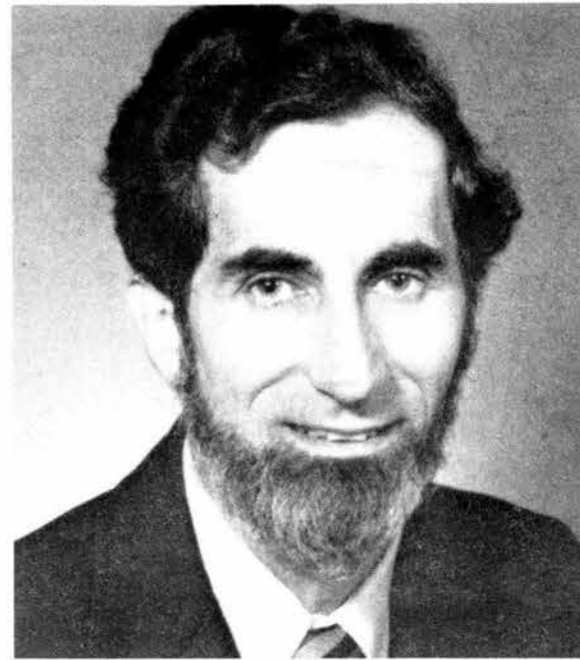
Mr. Anderson joined Bell Laboratories in 1961, working on optical communication systems. He was named supervisor of a group engaged in development of microwave ferrite devices, and later worked on exploratory development for optical memory applications. In 1968 he became Head of the Optical Control Device Department with responsibility for ultrasonic devices and optical components for memory and display applications. In 1973 he headed a joint Bell Labs/Western Electric team responsible for photomask development and production. He's served as Head of the Integrated Circuit Packaging Department and the Lightwave Subsystems Department, responsible for development of lightwave subsystems including receivers, wavelength multiplexers, optical data links and interfaces, and digital optical memories. He became Director of the Elec-

tronic Components and Subsystems Laboratory in 1981.

Mr. Anderson received a BS in engineering physics from McGill University in 1957 and his MS and PhD in EE from Stanford University in 1959 and 1962, respectively. He is a Fellow and a 1985 Centennial medalist of the Institute of Electrical and Electronics Engineers.

He holds two patents and has two patents pending on optical modulators and deflectors. He has published 30 articles, most of them involving microwave devices, optical modulators, deflectors and detectors, optical storage and display devices.

He and his wife Kathryn have a daughter, Susan, and a son, Robert.



LAWRENCE ANDERSON (2000)



## Sandia Makes Critical Change to Galileo Probe Parachute

In early 1983, the Galileo probe parachute destined for NASA's mission to Jupiter was in trouble.

The chute was designed to ease the probe through the Jovian atmosphere when the Galileo spacecraft reaches the giant planet in 1988. But during its test drop from a balloon 95,000 feet above White Sands Missile Range, the chute failed — it didn't inflate fully.

That's when NASA called Sandia, specifically Carl Peterson's Parachute Systems Division 1632.



HAL WIDDOWS (1632) made the model parachutes of the Galileo probe in Sandia's Parachute Lab. The model chutes were tested in the wind tunnel at Langley Field.

"The people at NASA are familiar with our work," Carl says. "For example, we helped them develop and test the parachutes that allow the solid rocket booster tanks for the Space Shuttle to be recovered."

Division 1632's parachute design team — Bill Pepper, Ira Holt, Don Johnson, and Dean Wolf — listened to the NASA and GE probe contractor people describe their problems and, based on long experience in developing weapon parachutes, proposed modifications to the probe parachute.

The probe is designed to separate from

### SANDIA EDUCATION Center Pages

the Galileo spacecraft 150 days before it reaches Jupiter's atmosphere. A thermal shield on the kettle-shaped probe will protect the scientific instruments inside as it slows from a velocity of 115,000 mph to approximately 2000 mph as it enters the Jovian atmosphere — some 280 miles above the gaseous inner core.

At this point, instruments in the probe have been taking data for approximately five hours from the time that the probe encountered the planet's ring plane (composed of orbiting bands of dust and particles).

Once inside the atmosphere, the pilot chute deploys the main parachute, which removes the shield from the probe and slows the descent to about 200 mph. The instrumentation unit measures the constituents of the Jovian atmosphere and relays data to the orbiting spacecraft. The slow descent provides an additional hour of data taking — a most critical part of the mission.

The Galileo parachute system was designed by Pioneer Parachute Co. and is

similar to the parachute used by the Venus sounder probe. The pilot chute is 3.75 feet in diameter and the main chute is 12.5 feet in diameter. Both are 20 degree conical ribbon parachutes made of Dacron.

Sandia's parachute computer design codes (called INFLAT and CANO) were used to evaluate the structure and performance of both the original design and a modified design proposed by Division 1632.

"Although our codes have often been successful in predicting inflation characteristics of parachutes," Carl says, "they were not able to predict the inflation problems of the original Galileo parachute in the turbulent wake created by the blunt probe. We called upon our experienced parachute designers to solve the Galileo inflation problems."

The Sandians lengthened the distance between the chute and the probe and added several vertical ribbons to reduce porosity and promote inflation. Dean Wolf (now 312) did the analysis using the computer codes. The analysis indicated that the modified design would meet mission requirements.

Scale models of the modified design for wind tunnel testing were built in Sandia's parachute lab by Hal Widdows (1632) and tested in the transonic dynamics wind tunnel at Langley Field. Models of the original design reproduced the inflation problem observed in the White Sands test, while the model of the modified configuration inflated properly.

NASA had full-scale chutes built using the modified design and scheduled another field test for August 1983. Launched near Roswell, a balloon carried the test package to a point over White Sands and released the test unit from 98,000 feet. The test was suc-

(Continued Next Page)



# Antojitos

Hail to Thee, Technology Hugh Downs once marveled at a civilization that invented shelter to keep out the cold, then had to invent refrigerators to keep enough cold inside so the food wouldn't spoil, and then had to invent a warm place inside the cold one so the butter wouldn't get too hard.

Now we're doing somewhat the same thing with telephones. We have them to make communication quick and convenient. And we pay extra for 25-foot cords so, theoretically, we can roam around the house while we're speaking with someone in Seattle. But note sometime the condition of most of those long cords -- twisted and kinked to the point that you can barely remove the receiver from the switch hook, much less roam to the refrigerator.

And then there are the fancy sports cars. Big bucks paid for rakish, aerodynamic front ends. Then we pay more bucks for a "bra," of all things, to protect that front end -- totally destroying, of course, all its aesthetic value. Then (and here's where we get to the "butter keeper syndrome"), if we have a really fancy car with pop-up headlights, we have to buy a sort of nursing bra, one with flaps over the headlights. Now, before we can turn the lights on, we must get out of the car and go up and unsnap its little snaps. Shades of Deussenberg side curtains! ●BH

\* \* \*

Plus ça change, plus c'est la même chose. (French: The more things change, the more they stay the same.)

*Continued from Page One*

## Galileo Parachute

cessful -- the "fixes" worked.

The Galileo mission is still on schedule. A Space Shuttle will launch the spacecraft in May 1986; it will require two years to encounter Jupiter, some 390 million miles away. After the probe is released, the spacecraft will make 10 orbits, photographing and making further scientific observations.

The parachute modification is Sandia's second critical contribution to the Galileo project. The Microelectronics organization 2100 provided the radiation-hardened integrated circuits (ICs) for the spacecraft's on-board computers and sensor instrumentation (LAB NEWS, April 26, 1985).



# LAB NEWS

Published Fortnightly on Fridays

**SANDIA NATIONAL LABORATORIES**

An Equal Opportunity Employer

ALBUQUERQUE, NEW MEXICO  
LIVERMORE, CALIFORNIA  
TONOPAH, NEVADA  
AMARILLO, TEXAS

Sandia National Laboratories is operated by Sandia Corporation, a subsidiary of AT&T Technologies, Inc., and a prime contractor to the U.S. Department of Energy.

BRUCE HAWKINSON, Editor  
DON GRAHAM, Assistant Editor  
NORMA TAYLOR, Writer  
LOUIS ERNE, Photographer  
GERSE MARTINEZ, Assistant Photographer  
BARRY SCHRADER, Livermore Reporter

Member, International  
Association of Business Communicators

## Supervisory Appointments



SHARON FLETCHER (2813)

SHARON FLETCHER to supervisor of CADS Network Development Division 2813, effective July 1.

Sharon joined the Labs in June 1976 as a member of the technical staff working with a group on real-time software development. She was named project leader and, later, transferred to the National Seismic Station where she worked on algorithm and seismological tool development. For the past two years, she has been with CAD/CAM Integration Division 2811.

Sharon received her BS in math from Trinity University and MS and PhD in computer science from Purdue. She enjoys skiing, sewing, and tennis. She and her husband Michael (315) live in the NE heights.

\* \* \*

BILL ASHER to supervisor of Maintenance Operations Planning Division 7815,

## Events Calendar

July 19 -- Summerfest: Friday Evening Gala with the Chico Show, 5:30-8:30 p.m.;

July 20 -- Sister Cities International Day, 5-10 p.m.; July 26 -- KRZY Country Friday Nite, 5-10 p.m.; July 27 -- Americana, 5-10 p.m., Civic Plaza, 766-7660.

July 19-28 -- Albuquerque Civic Light Opera, "They're Playing Our Song," 8:15 p.m., Sun. 2:15 p.m. only; Popejoy, 345-6577.

July 21 -- Albuquerque Municipal Band concert, 1-2 p.m., Old Town Plaza.

July 26 -- Annual Santa Ana Feast Day, corn dance; Santa Ana and Taos Pueblos, contact pueblos.

July 26 -- Chamber Orchestra of Albuquerque concert, 8:15 p.m., Albuquerque Little Theatre, 247-0262.

July 27 -- Iris Guild Rhizome Sale, 8 a.m.-4 p.m., Albuquerque Garden Center.

Aug. 2 -- Our Lady of the Angels Feast Day; celebrates the patron of the extinct Pecos Pueblo; Old Pecos bull dance, Jemez Pueblo, 834-7359.



BILL ASHER (7815)

effective June 16.

Bill has been at the Labs since February 1956. His first assignment was a three-year stint in the business methods organization. He was promoted to supervisor of the microfilm section in 1959. He moved to Plant Engineering in 1960 as supervisor of a control group and, since 1983, has headed Maintenance Operations Section 7815-2.

Bill earned his BA in industrial relations from Tulsa University. He's done graduate work at both Tulsa and UNM. Bill, a member of Master Runners Unlimited, is an avid competitive runner; he holds several city and state titles in the senior division for 50-yard, 100-yard, one mile, 440 relay, and long jump. He also enjoys hunting, fishing, and table tennis. Bill and his wife Lucille have three children and one grandchild. They live in the NE heights.





DUNCAN TANNER (8471) shows the poster given donors to promote bidding at KQED's annual fund-raising auction.

**KQED Volunteer**

## Part of the Auction Action

Some people use vacation time for travel, camping, or just relaxing around the house. Then there's Duncan Tanner (8471).

He takes three weeks off each summer to work 12 to 18 hours a day as a volunteer at the KQED TV fund-raising auction in San Francisco.

Duncan and his wife Chris have been helping the public broadcasting system station in its financial drives for the past 14 years. She was the first to volunteer. As a community solicitor, she gathered items to be used at the annual auction. Then she became coordinator of solicitors for Livermore, and now serves as Valley-wide coordinator for three communities.


Chris talked Duncan into getting involved. First he worked at auction headquarters logging in donations, then did some statistical work for two or three years. But when the KQED staff discovered his knowledge of computers and knack for software programming, Duncan's role escalated. For the past eight years he has been in charge of the whole data processing system, from software design and development to supervision of the setup and operation.

Each year Duncan takes three weeks of vacation, starting just before Memorial Day, and moves into living quarters near the Cow Palace, site of the auction. "It's a seven-day-a-week activity for us," Duncan says. "Even though it's exhausting at times, with 12- to 18-hour days during the peak of the auction, Chris and I keep returning each year to do our part." While Duncan is overseeing the data processing, Chris helps handle the processing of the more complicated donations that require special paperwork.

His job is to provide in-the-door, out-the-door inventory control of the approximately 7000 items and services donated for the fund-raiser. The auction staff and volunteers use terminals and printers lent by Hewlett-Packard, and hook into a large



A GROUP OF 22 students and four faculty members recently toured the Combustion Research Facility and received a briefing from Gary Drummond (8301; third from top) and George Fisk (8353; second from top). The students are a part of a special summer program through San Jose State sponsored by Associated Western Universities and funded by the DOE to give new students an orientation in engineering opportunities at various national labs.



# SANDIA LIVERMORE NEWS

VOL. 37 NO. 14
SANDIA NATIONAL LABORATORIES
JULY 19, 1985

computer by telephone line provided by United Airlines in South San Francisco. They also maintain a list of the last three years' records of donors with addresses and buyers. During the rest of the year Duncan works out of his home on software development for the auction, sometimes logging in to the United computer and other times utilizing his home computer system.

The sale items this year ranged from a \$200,000 home and an \$80,000 condo to a progressive gourmet dinner for eight in the Livermore Valley vineyards (which sold for \$125). Duncan encourages other Sandians to get involved with helping KQED, either by bidding or by volunteering time to help with the auction and other special events conducted by the station. He has recruited other Sandians in past years, and once asked the Badge Office to make some identification badges for those working in the warehouse, which contains more than a million dollars worth of donated goods.

Duncan and Chris have good things to say about KQED as a public service to the Bay Area. He particularly likes the variety of programming, which includes quality concerts, theatrical performances, sporting events, and other special interest programs not available on commercial television. For a minimum \$35 membership, supporters also get a subscription to the monthly *San Francisco Focus* magazine. Those wishing more information on KQED can get in touch with the Tanners or call the station in San Francisco.

### Sympathy

To Wayne Jacks (8445) on the death of his mother in Nashville, Tenn., May 31.

To Vern Barr (8176) on the death of his mother in Red Bluff, Calif., June 11.

To Chuck Pignolet (8431) on the death of his mother in Willoughby, Ohio, June 16.

To Tim Cody (8235) on the death of his father in Waterford, Calif., July 1.

### Congratulations

Cheryl Boynton (8022) and John Lawrence, married in San Ramon, May 18.

Jack Bishop (8265) and Geri Vallerga, married in Alameda, July 6.

Pamela and Robert Monson (8431), a son, Michael Robert, June 4.

### RETIRING



Cliff Pothoff (8153)





THE MISFITS emerged the champs of the Albuquerque Soccer League's third division recently with a 12-win, two-tied, and two-loss record for the season. Twenty-eight teams compete in the League's three divisions. In the first row are team captain Bill Wampler (1112), Ricardo Beraun (6332), Steve Pyo (322), John Biffle (1523), Ken Osburn (3142), and Channy Wong (6427). Standing are Mark Ramsey (2514), Ramon Pacheco (7253), Lou Cropp (6433), Luis Abeyta (7531), Mickey Gorospe (7818), Norman Day (C&D), and Steve LeTourneau (7531). The team is sponsored by SERP.

## Fun & Games

**Handgun Safety** — The Sandia Labs Rifle and Pistol Association is sponsoring a handgun safety class for women. "This is in response to a number of requests we've had from women interested in learning about handguns for home defense," says Paul Hlava (1822). The class will meet on Monday, July 29, starting at 5 p.m. at Alcon's Target Club (located on Lomas just east of I-40). Enrollment will be limited to 12. A \$5 fee is required (which includes a year's membership in the Association). For details, call Paul, 4-6174.

\*\*\*

**Squaredancing** — The Swinging Singles Square Dancers have been organized since 1973, meeting every Tuesday evening at the Albuquerque Square Dance Center, 4915 Hawkins NE. The group is offering free introductory lessons on July 30 and Aug. 6 from 6:30 to 8 p.m. to any interested single

## Take Note

Graduating classes from 1940 to 1950 at Las Vegas High School will have a combined reunion Aug. 16-18 at Las Vegas. Please pass the word if you know of anyone from any of these classes. Contact Gordon Charlton, Foundation Reserve Insurance Co., P.O. Box 1347, Las Vegas, NM 87701

\*\*\*

And, another reunion — this one for members of a World War II European Unit, the 387th Bomb Group (B-26 Med, 9th Air Force, 1942-45). The reunion will be held in conjunction with the Confederate Air Force Airshow, Oct. 11-13 at the Holiday Inn Resort Hotel, South Padre Island, Texas. For more information, contact Bob Allen, 9215 Cherokee Pl., Leawood Kan., 66206 (913-649-6606).

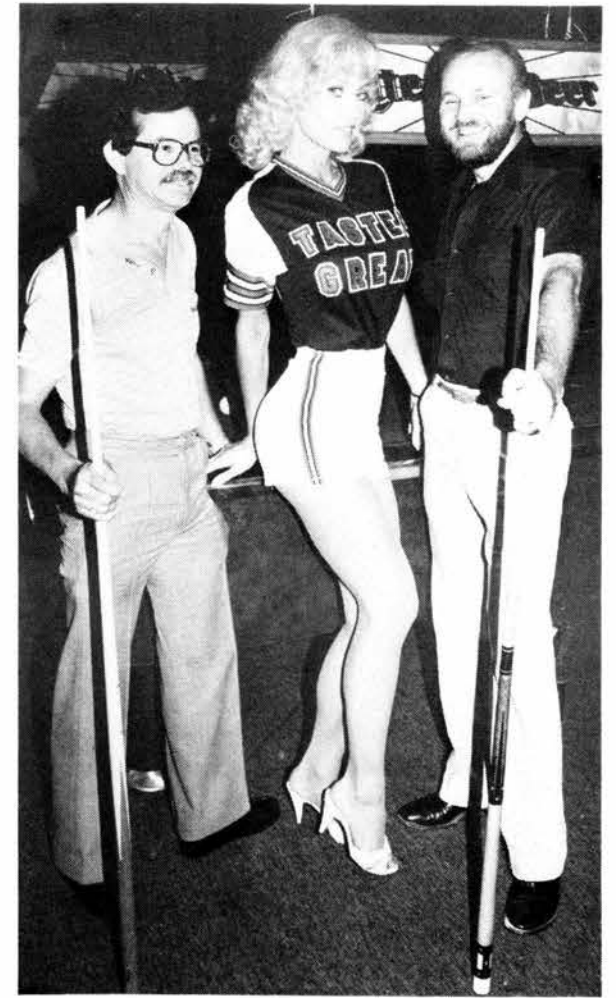
\*\*\*

Retiring this month and not shown in LAB NEWS photos are Burl Duncan (131), Lorraine Newman (2822), David Sample (6313), Johnny Stuckey (3441), Richard Berg (5252), Katherine Weston (5215), and Robert Fortin (7531).

(no partners required, but couples welcome). The introductory sessions are a prelude to a 34-week course. For more information, call Carolyn King (152), 4-4841.

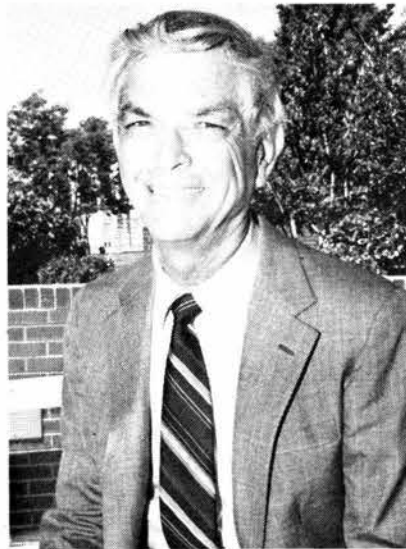
\*\*\*

**Aerobics** — A SERP coed aerobics class starts Aug. 5 at 5:15 at the Coronado Club. The four-week class will meet on Mondays and Wednesdays. Fee is \$12, but the first session is free. Stop by and give it a shot. Instructor is Terry Holovka (1250).



TIME OUT from tough competition is taken by Gerse Martinez (LAB NEWS photographer who usually has others doing the posing) and Lou Zelnio (1652), right, to pose with Lee Meredith (Miss Miller Lite) during the recent World Series of Tavern Pool played at the MGM Grand in Las Vegas. Some 1200 men and 400 women competed. Gerse was wiped out in the second round and Lou was eliminated in the third, but there were other compensations. Lou Roybal (7475) was also eliminated in the third round of the tournament.

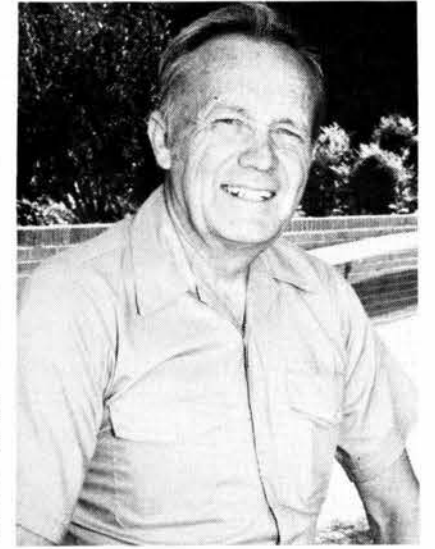
## Retiring



Paul Roper (7173)



Gene Jeys (7253)



Ozzie Ozmun (2853)



Manuel Aguilar (3428)

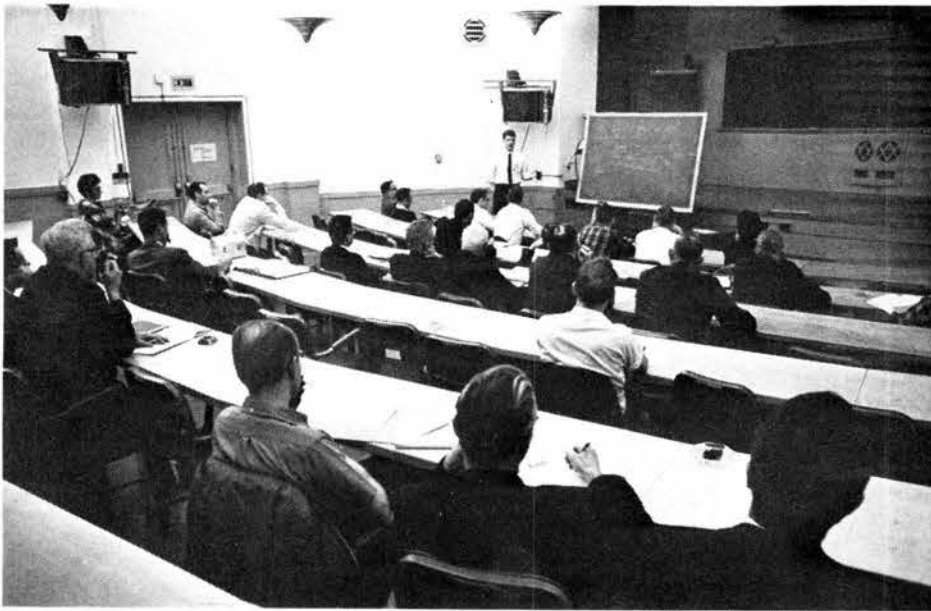


George Reis (5341)



Tess Reis (132)





THAT WAS THEN — THIS IS NOW (ALMOST) — Above left, a 1968 Out-of-Hours class in basic computer principles meets during the noon hour. The instructor is former Sandian J.H. Spitzer. Above right, INTEC students take a



class in 1980 using closed-circuit TV — not yet from the "outside world," but a step in that direction. This fall, Sandians will be able to take advantage of six to eight interactive video courses beamed here from UNM.

### Some Changes Ahead But . . .

## Education Programs Do a Good Job

It's not exactly that they "grew like Topsy." Educational programs for Sandia employees were added because they were needed.

But when Everet Beckner (6000) took over as chairman of the Sandia Education Committee in October 1984, he and John Cantwell, manager of Education and Training Dept. 3520, agreed that it was time for a comprehensive review of all the programs. "Some of these programs had been going on for 30-plus years, but no one had stopped to take a comprehensive look at all of them," John says.

And so an ad hoc Education Programs Review Committee (EPRC) began the job of assessing each program's effectiveness. Everet chaired the committee; its membership included a cross section of line directors and department managers (see box). Staff support came from the training organizations at both Albuquerque and Livermore and from Administrative Policies and Procedures Division 132.

During its five-month review process, the committee looked at each program or activity and asked

- What are we doing?
- Why are we doing it?
- What are the results?
- What is the value of the program versus its costs?
- What is its relevance to current and future needs?

Overall, the committee found that, even though there is a need for some change, we're doing a good job of providing educational opportunities to all Sandians.

The committee also looked at costs. But cost *cutting* was not the goal. Given the importance of education to Sandia's primary mission, that would (figuratively speaking) be disconnecting your brain to spite your body. Determining the level of cost *effectiveness*, however, was a goal — education isn't cheap, but it's vital.



"AT&T [then known as the Bell System] has always had an extraordinary commitment to education and training without an extraordinary concern about measuring bits and pieces of costs," John explains. "And since we follow the business practices of the Bell System, we have historically been committed to educating our employees.

"All we have is knowledge. Our product is the manipulation, the change, the creation of knowledge. It has been understood here from the beginning that, if you're



*"...the greatest breadth of educational programs of any of the DOE labs."*

John Cantwell - 3520

in the knowledge business, you have to refresh, revitalize, and renew the knowledge base constantly. After all, a doctorate is good only about five years — in terms of keeping abreast of the latest science and technology in a given discipline.

"But simultaneously, we have a commitment to all employees — not just the professional staff," he continues. "Sandia probably has the greatest breadth of educational programs of any of the DOE laboratories. In fact, you'd have difficulty finding that breadth of programs — programs for a range from custodian to manager — in any other American corporation."

(Continued on Next Page)

## Sorting Through The Alphabet Soup

**EAP (Educational Aids Program)** Provides tuition assistance for employees seeking undergraduate and advanced degrees.

**DSP (Doctoral Study Program)** Provides tuition, salary, and transfer costs for selected employees to earn a PhD.

**GEP (Graduate Education Programs)** General term for all special/advanced degree university-based programs.

**INCLAS (In-Hours Courses for Laboratory Staff)** Courses to meet the needs of MLS/MA staff.

**IHD (In-House Dissertation Program)** Provides tuition and salary for selected employees to earn a PhD locally.

**INTEC (In-Hours Technical Education Courses)** Courses to develop broad technical and analytical capabilities applicable to SNL's overall mission.

**ISAC (In-Hours Stand Alone Courses)** One-of-a-kind courses to meet specific needs; for example, vendor computer courses.

**OOH (Out-of-Hours Program)** Program of courses for all Sandia employees during lunch period and after hours.

**OYOC (One Year on Campus)** Affirmative Action program to give new-hire women and minorities an opportunity to earn an MS degree.

**SED (Specialized Engineering Development)** One-year program leading to an MS — relates to weapons assignments.

**SMMP (Special Microelectronics Master's Program)** Program for new hires (on roll 12-15 months) with BS in EE to obtain an MS with specialization in microelectronics.

**TA (Technical Aide Trainee Program)** Affirmative Action program — participant must have a line sponsor.

**TIE (Technical Institute Equivalency)** Provides the equivalent of an associate degree through course work in the OOH program. Participant need not have a line sponsor.

**UPT (University Part Time)** Provides an opportunity for employees to accelerate work on advanced degrees.



That breadth of educational opportunities is impressive, but Everet sees one area needing improvement. "We provide an enormous number of educational options for our employees," he says. "But too often our supervisors don't provide employees with enough counseling and feedback about making an educational plan that will lead to satisfaction with their career goals."

"Many people don't understand that, when they earn a degree, they aren't automatically reclassified — technician to staff, for example. Supervisors need to talk to their employees so that they don't spend years earning a degree that may not lead them to career advancement here."

All the EPRC recommendations were divided into three classifications: on-premises, university based, and management and staff development programs. The committee recommended that on-premises programs be modified to

- limit INTEC to high-priority courses (such as those that accelerate the use of new technologies to match Sandia's future needs),
- increase the use of video,
- phase out selected programs (such as the Technical Institute-Trainee program, which has already served its function), and
- provide oversight by OPEC of certain programs (such as vendor computer courses, ISAC, and TIE).

University-based programs will be modified to

- tighten up OYOC to ensure that those selected choose schools appropriate to their abilities and interests and that all OYOC-approved schools are committed to graduate the OYOCs in 12-15 months,
- consolidate the Graduate Education Program in order to improve access to and administration of programs (so that prospective candidates will more easily understand eligibility requirements, as well as requirements of the programs themselves).

Management and staff development changes include

- continuing to strengthen supervisor training programs,
- phasing out general staff courses (with the exception of "Managing Professional Growth"), and
- improving office automation training for secretaries.

The committee recommendations were approved by Small Staff in May.

"Two of the committee's recommendations are especially important," Everet says. "First is the shift to greater use of instructional TV in Albuquerque. We've been using instructional TV for a long time in Livermore because of the ready availability out there — the Stanford link, for example. But now the technology is arriving here, too. So we plan to gradually reduce the number of INTEC courses offered and offset that reduction with instructional TV offerings — but only as their quality and content meet our needs. This year, we had one course in robotics from UNM, and this fall we plan five or six more. [LAB NEWS, Feb. 1, 1985.]

"Instructional TV is changing — it's now broader than it could ever have been before.

The new technology provides access to more courses both through UNM and the National Technological University. We're trying for the best mix of various options, but we must first be convinced that the TV courses are better than INTEC courses before we start replacing them."

The second major change Everet cites deals with management development. "We've had the greatest difficulty in finding the right direction here," he says. "We do have a set of course offerings for new division supervisors dealing with the 'nuts and bolts' of administrative functions. But we've had nothing to help supervisors develop their skills in dealing with people — until now. We now have a 10-week course developed out of a set of purchased materials, and we think it's a major step in the right direction."

"These changes demonstrate our continuing commitment to provide educational opportunities for all Sandia employees," John says. "We spend \$10 million a year on educational programs. To put that figure in context, the recent Carnegie Foundation report, *Corporate Classrooms: The Learning Business*, points out that corporations nationwide are now spending upwards of \$40 billion a year educating their employees.

"And as we provide a broad array of pos-



"...we've had nothing to help supervisors develop their skills... — until now."

Everet Beckner - 6000

sibilities, we must ensure that they are cost effective and contribute to maintaining and expanding Sandia as a premier organization in the knowledge business."

As President George Dacey says, "In an enterprise like ours — in which our employees' creativity makes contributions to knowledge generally and the state of the art scientifically, and in which people tend to have long term careers with us — we must provide a variety of means by which people can keep their technical tools sharp and their knowledge and capabilities at the limit of what their potential will permit. And that means providing a wide range and an in-depth level of educational opportunities."

## Education: Good for Sandia Good for Sandians

Indirectly, we all benefit from Sandia's education programs. The sharper our compatriots, the greater the technical challenges Sandians can meet. That helps all of us — and the country as well.

We benefit directly, too. Sandia's financial commitment to all education programs (Albuquerque and Livermore) averaged more than \$1000 per employee per year over the last four years.

And that financial commitment translates to a very human commitment on the part of Sandians themselves. "As at Bell Labs, education is very much a part of the culture of Sandia Labs," says John Cantwell (3520). "When we recruit and when we promote, all of the educational opportunities are presumed to be an integral part of a career here."

And we do take advantage of those opportunities:

- As of November 1984, Sandians have racked up 65,000 course completions in the Out-of-Hours program since its inception in the fall of 1955. The first program saw 12 completions; in recent years, completions average 1100 per year.
- From 1972 through 1984, INTEC course completions numbered 11,250.
- During the past year, 2406 of us used the Individualized Learning Center. Cathy Brunacini (3522) speculates that the figure will rise sharply once the ILC is open for use after hours.
- During the 83-84 academic year, Sandians at Livermore completed 659 in-house courses.

- And in 1984, SNLL offered 169 instructional TV courses on eight channels from seven different schools in the Bay Area.

We also make good use of opportunities to earn advanced degrees through such programs as EAP, OYOC, and DSP.

• Mike Robles (2613) joined Sandia in July 1969 as an SAT. Through EAP he earned a BBA at UNM and an MBA at NM Highlands. He's now supervisor of Office Systems division.

• Joan Woodard (8316) came to Sandia in 1974. She earned her MS in Engineering Economic Systems at Stanford through the OYOC program and her PhD in ME at UC Berkeley. She's division supervisor of Materials and Processes.

• Rebecca McClafin (2629) started as a temporary hire in the secretarial training program in 1969. Through EAP, she earned her BS at the U of A by taking evening courses. She's now an MLS trainee and expects to complete her MBA at UNM in May 1986.

• Dan Brewer (3531) started here in 1971 as a mailroom clerk. Working nights as a janitor and later in computer operations, he earned his BS in accounting at UNM through EAP. Again using EAP, he earned an MA in business management at NM Highlands in 1978. He's now an MLS in Personnel.

We attend universities all over the country; we take classes on site; we take classes at T-VI; we take classes at UNM. In fact, 25 percent of all Albuquerque supervisors have one or more degrees from UNM.





MEMBERS of the first TDP (Technical Development Program) class celebrated the 25th anniversary of the program with a dinner and dance June 29 at the Coronado Club. Of the 68 who completed the two-year educational program, 37 are still on roll. Making the picture session were (in front, from left) Roger Roberts (2364), Bill Sullivan (2566), Jesse Allen (5252), Jim McDowell (5127), and Heinz Schmitt (2800). In the second row are Al Giddings (2115), Ray Krieg (1521), Norb Siska (2364), Arlo Nord (7544), and Dennis Mangan (5254). In the third row are Ralph Wardlaw (5343), Jim Lang (5153), Leo Klamerus (2544), Jon Barnette (2545), and John Kane (5211). In the top row are Cliff Jacobs (5322), Tony Russo (1512), Tom Workman (2360), Dick Braasch (1621), and Bob Alvis (5153). Thirteen members of the class from out-of-town returned for the anniversary event.

## First TDP Class Marks 25 Years

Twenty-five years ago last month a group of young men from around the country wearing dark suits and ties, sporting short haircuts, and clutching newly earned bachelor's degrees in EE and ME gathered at Sandia to become participants in a bold experiment called the Technical Development Program. It was successful beyond expectations.

The elements of people, time, place, and program jelled to produce what became the backbone of Sandia's technical work force.

In those days the country had not yet reached the age of affluence. A buck was hard to come by. After a four-year grind (and the expense) of earning a bachelor's degree, a young engineer was eager for a job, for a career, for a family.

Then too, most engineering positions, at Sandia and elsewhere, didn't require advanced degrees. So there weren't many MS-level engineers around.

But Sandia's mission was changing. From a production-oriented company with emphasis on testing and manufacturing engineering, the demands of the weapons program (and Sandia's part in it) shifted to more research-oriented tasks, more advanced development, and more technically demanding systems. In those days, the slide rule was still the engineer's basic tool of the trade; some engineers still worked at a drafting table.

Times change.

That was the whole point of the Technical Development Program. Sandia management could see the technical challenge ahead — the future of the Laboratories demanded the best and brightest of the engineering talent available. If there was a shortage of young engineers with advanced degrees, then the company would "grow its own."

The Sandia Education Committee hammered out a plan for advanced education with UNM — a curriculum heavy in analytical engineering methods, nuclear physics, advanced mathematics, and statistical analysis was developed. A pilot group of 20 entered the program in 1959. The course work was hard and required long hours at the books. About half finished the two-year program. Still, in 1960, results were promising, and Sandia recruiters described the program in glowing terms to senior college students — they promised a career and an opportunity for higher education. It would not be easy, they said, but it would be rewarding. About half of the TDP participants' time would be spent in classes, the other half on work assignments in their Sandia technical organizations. Homework, of course, was done at home.

Seventy-five joined the first class in the summer of 1960. Completions two years later numbered 68. Of these, 37 are still on

roll. Included are a director, two department managers, and 12 division supervisors.

The program continued for nine years. A total of 447 entered the program; 406 completed it. Two hundred are still on roll. They include two directors, 13 department managers, 69 division supervisors, and 12 Distinguished Members of Technical Staff.

Dick Schwoebel (1800), a member of the Sandia Education Committee and chairman of the subcommittee on university programs, commented on the TDP: "TDP was the first of a series of excellent graduate programs initiated here, and it's gratifying to see how successfully Sandia and UNM carried out that joint effort. Two new masters degree programs with UNM are the Special Masters in Microelectronics (SMMP) and the One-Year-On-Campus (OYOC). I hope we will be able to look back on these efforts as being as productive as the TDP program."



COURSES, COURSES, COURSES, of course. Ruth Brooks (3521) shows off her collection of Out-of-Hours course catalogs, which date back to 1958. Course completions number more than 65,000.



**JWG Strengthening Universities — and Sandia**

## **Synergy: Sandia and the New Mexico Universities**

A national laboratory working with a top-notch university can be an effective combination when it comes to scientific research — witness the “science alliance” between Oak Ridge National Lab and the University of Tennessee. That’s why strengthening the ties between Sandia and UNM (and other PhD-granting New Mexico universities) has long been a goal of Sandia.

Dick Schwoebel (1800), John Cantwell (3520), Maureen Baca and Mike Rex (both 3521) had such an alliance in mind when they proposed the Joint Working Group on Education (JWG) to Gerald May, Dean of the UNM College of Engineering. UNM officials agreed, and the JWG was established last November. The group has now completed some important first steps toward a major revamping of collaborative education programs.

“Our general objectives are to identify technical areas of mutual interest and benefit,” Dick explains. “We also want to explore ways to enhance interactions in these areas that would be supported by top management from each institution.”

The other JWG members are Jim Schirber (1150) and George Samara (1130). UNM is represented by Gerald May; Chris Garcia, Dean of Arts and Sciences; Mark Price, Associate Provost for Academic Affairs and Dean of Facilities; and Russ Seacat, Chairman of the EE Department. Dick, who is chairman of Sandia’s University Programs Education Committee, chairs the JWG.

The JWG has made considerable progress in several areas. For example, under a new Joint Appointments Program, up to six new professors will be appointed to junior-level faculty positions at UNM. They will be formal members of the University faculty, teaching and working in areas of mutual interest to both UNM and Sandia. They will devote half their time to research at Sandia during the first two years. The JWG is now seeking candidates in micro/opto-electronics and will very likely seek candidates in related areas in the near future.

The long-range goal here is a Distinguished Professor Program in which a “world-class” professor would join UNM’s staff. “We want to develop a ‘steple’ of advanced technical activity in which the Joint Appointees, participating UNM faculty and graduate students, and their counterparts at Sandia, would be joined by a world-class professor,” Dick explains. “In some cases, we may be able to attract a distinguished professor who would play a key role in developing an important new thrust area right from the beginning.”

Also benefiting from JWG attention is a new Special Microelectronics Masters Program (SMMP) at UNM. Through SMMP, selected BS-level candidates will earn an MS appropriate for Sandia’s microelectronics R&D. It took the JWG only two months to establish the program, which will begin this fall at UNM.

Previously, only a few schools, including Stanford and UC Berkeley, were approved for this Sandia program, which requires a special curriculum and facilities. One of the major problems for Sandia has been the low retention rate of candidates who attended California schools — too often they left the Labs and joined firms in the Silicon Valley. JWG has worked with UNM to qualify it as one of the schools in this program, a move that should not only reduce the cost of this program but one that should help retain a higher proportion of SMMP graduates.

“We believe SMMP will benefit the Labs and UNM, and other microelectronics activities in New Mexico as well,” Dick says. “We’ve developed a fine curriculum and will offer the option of a thesis program, which Stanford doesn’t have.

“In fact, we believe the new program at UNM will actually be better in some respects than Stanford’s. Sandia has a great deal in the way of equipment and facilities to conduct thesis research, and we think that candidates in the thesis option will help establish a more enduring research relationship between UNM and Sandia. When you put it all together — a quality academic program coupled with a national R&D lab with unique equipment — you have a strong new graduate program that can benefit New Mexico.”

A third example of JWG-inspired

improvements is a more efficient means for universities to acquire lab equipment. The committee Dick established, headed by Ruth Whan (1820), oversees the purchase of large expenditure analytical equipment. When equipment no longer meets Sandia’s needs, it winds up in Reclamation, sometimes in pieces, and may ultimately become unusable. JWG made it possible for Ruth and an ad hoc group to survey surplus equipment and transfer it to state universities with less red tape. Typically, university departments have small equipment budgets, and the excess equipment is a welcome addition to their labs.

The JWG has modeled some of its programs on a nationally recognized leader in lab-university relationships. “We invited officials from Oak Ridge, the University of Tennessee, and the State of Tennessee to meet with Sandia, UNM, and DOE representatives to explain the interactions between their institutions,” Dick says. “We felt the interchange was very instructive, although many aspects of their program do not directly apply to us. For example, Tennessee has a \$40 million program to improve education from kindergarten through graduate school, and this includes a very ambitious Distinguished Scientist Program at UT.

“We are somewhat at the other end of

---

### **Rio Grande Corridor, Technet, Rio Tech, Etc.**

## **Sandia: Symbiotic, Complementary, Helpful**

LAB NEWS asked President Dacey to explain Sandia’s role in the Rio Grande Corridor concept:

“Broadly, I think the Rio Grande Valley represents a potential for an exploitation of mutual cooperation that we have not as yet optimized. To have two national laboratories within 75 miles of each other, a university system that’s spread along this corridor, other federal sectors, and a growing high tech private sector all connected by geography is a unique situation.

“The Centers of Excellence [two at UNM, two at State, one at Tech] are intended to provide a kind of early opportunity for world class excellence in our university systems. There is no reason we shouldn’t have in such centers a group of professors, in a particular field of study, that will enable us to be as good as anything anywhere in the world.

“Technet recognizes that this Rio Grande Corridor of ours is spread along a 300-mile line. Essentially, the Technet idea is to establish a digital network that enables the universities, the national labs, and the private sector to exchange data, technical information, and computer resources over a network specifically designed for that purpose.

“Rio Tech is a private nonprofit corporation, a foundation that aims to bring the con-

cepts of both the centers of excellence and the “science alliance” into greater alignment. Perhaps they can use their resources to put together consortia, bring in a visiting professor, or get a joint project going between parties within the corridor.

“Sandia and Los Alamos clearly represent concentrations of some of the best technical minds and most competent technical people in the state. Mutually, we need to fulfill a national requirement — as well as our own objective — to see that our technology is made use of.

“But most important, meeting these objectives helps us to carry out our prime mission. That mission, of course, is R&D for the Department of Energy, not primarily to help the educational system or to help the state’s economy. Thus, we look upon our relationships in the Rio Grande Corridor as symbiotic, complementary, and helpful to our national R&D mission.

“Sandia is one of those institutions like Bell Laboratories, Los Alamos, and other major laboratories that have created a climate for excellence. Many of our scientists and engineers are recognized as among the best in the world. It takes years to create an institution that has the tradition and the structure that supports that kind of performance, and I hope that we can help to spread that kind of excellence more broadly throughout the state.”





*"It takes a lot of dedicated work to become first class..."*  
Dick Schwoebel - 1800

the spectrum: we are developing grass roots activities — making a beginning. It's important to eventually develop interactions with the state legislature and inform its members of problems and what we might collectively do to begin to solve them.

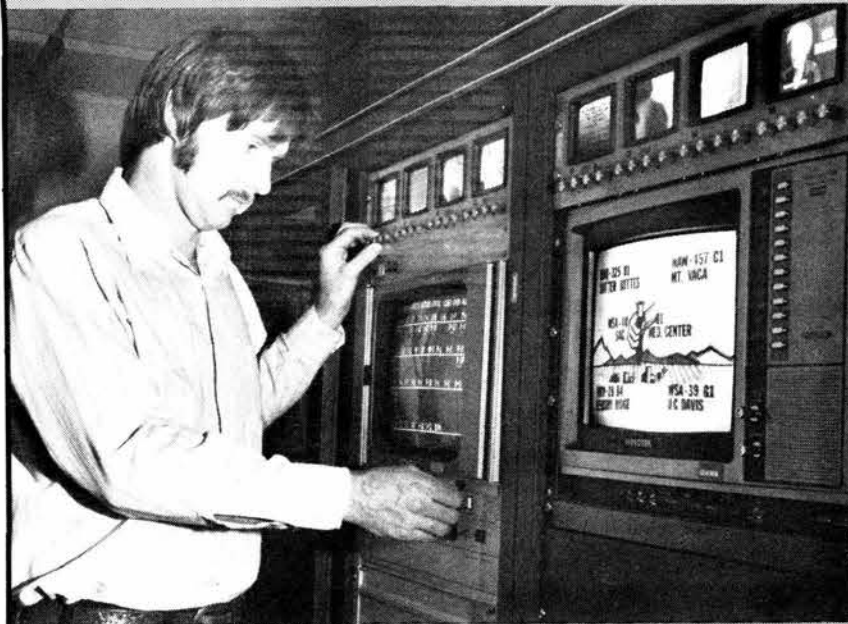
"For example, it does little good to hire UNM faculty at noncompetitive salaries. Some will stay, but many will leave. Some of those who do stay develop other sources of income, and in doing so, dilute their commitment as professors. We need to take the longer view: Every dollar invested in an improved university will be returned — in the quality of education and in the business and industry attracted to the area because proper training is available. If we can help improve the university, that will eventually raise the quality of life in the state.

"It takes a long time to develop the kinds of capabilities that put you into a 'world-class' category," Dick continues. "Sandia has devoted a tremendous effort to developing a first-class laboratory, and we now have a climate that can result in, for example, eventual top scientific recognition for Sandians.

"The same is true with a university. It takes a lot of dedicated work to become first class even in a few areas. With more cooperation, we can create the climate of interaction that will be quite attractive to students, industry, and educators."

JWG is also looking at other areas of education — the expansion of the Sandia University Research Program [see SURP article] and the National Technological University with its satellite-beamed classes from schools nationwide. "The future of video links for education is exciting," Dick says [LAB NEWS, Feb. 1, 1985]. "Its use will probably go up substantially. Right now we have one class in robotics, and by fall we'll probably have six to eight classes. We really can't predict the outcome, but it is quite possible that Sandians will eventually be able to take classes via video/computer terminals at their work stations, as opposed to going to the University and using five hours of travel time each week. Video instruction may have a dramatic effect on our on-premises education program. Eventually, the university and the on-premises activities may begin to merge.

"We can't afford to stand by and watch these things happening elsewhere," Dick concludes. "We need to fully explore these opportunities for the benefit of not only the Labs, but for the University, the community, and the state."



LIVERMORE'S EDUCATIONAL TV system now offers 12 channels of instruction. It's controlled by a computer that automatically brings each student's course to the proper carrel at the proper time. Here, Brian Chamberlain (8024) tunes in one of the channels.

#### Pioneered Video for Sandia

## Livermore Education Also Strong

Sandia Livermore is now welcoming Albuquerque to the electronic age. As the big lab heads toward greater use of video classes for its employees, Livermore marks some 12 years of experience in bringing university professors on site via closed circuit television.

Marlin Pound and Jim Smith (both 8024) first proposed the idea to then-Livermore vice-president Tom Cook (now 20) in the early 70s. "We wanted to offer Livermore employees the same range of courses that Albuquerque employees had," Tom recalls. "Albuquerque had UNM almost next door, but Livermore didn't have a major university within that same easy commuting range. Fortunately, the video option was becoming available to us. So, with LLNL, we pushed hard for educational TV links with Stanford, UC Berkeley, and UC Davis."

Now SNLL has 12 channels of televised instruction with about 100 courses available to employees each quarter. Through video, the classrooms of a couple of dozen colleges and universities — from the Bay Area and, through the National Technological University, from across the nation — are immediately accessible.

"What makes the program work is that it's interactive," Tom continues. "The two-way audio link means that a Livermore student in a private carrel on site can ask a question of a professor teaching a university class and both hear and see the answer."

(The UC Davis connection also has a "confessional" booth. It's a video link from the student to the UCD professor so a student can — in private — show, not just describe to, the professor an experiment or a batch of calculations.)

The wide use of interactive video is one unique feature of SNLL's education program. Another is that Livermore has long taken advantage of its proximity to the Bay Area schools and has worked to expand and improve the scientific, technical, and support courses available. In fact, Livermore people serve on committees that suggest academic policy and course improvements for such local

schools as Chabot Livermore, Chabot Hayward, and California State Hayward. Jim Smith is a member of the board of directors for ACE (Association for Continuing Education), a consortium of major universities and industries in the Bay Area. And SNLL, along with LLNL, is a member of the Link Committee that helps direct the technical content and operation of the UC Davis TV program.

In general, Livermore, of course, follows the policies set by the Sandia Education Committee — Rick Wayne (8400) is a member — and has the same educational programs and opportunities as Albuquerque (EAP, DSP, OYOC, etc.). And Livermore imports certain Sandia-specific courses developed at the headquarters lab and taught by Sandians Albuquerque.

Livermore also has several flourishing "visiting professor" and post-doctoral programs: the Sandia Research Associate program, the Summer Faculty Program, the Associated Western Universities graduate student and faculty program, and the Faculty Sabbatical Program.

In addition, Livermore's Combustion Research Facility has long had a visiting researcher program in which people from universities, private industry, and foreign governments work in the CRF from two weeks to a year or more. The CRF has had 28 visiting researchers so far in 1985 with a total of 47 expected during the year.

Such interactions "give faculty and graduate students the opportunity for study with our experienced researchers," says Gary Drummond, assistant to Dan Hartley (8300). "The visitors benefit from that interaction and from the fundamental diagnostic and advanced measuring tools in the CRF. In addition to their contributions while here, they assist Sandia in technology transfer by carrying the knowledge they've gained back to their universities and private industries."

Sandia exports its expertise directly as well: through the Joint Appointments Program, seven Sandians in the CRF are currently affiliated with universities in the West and Midwest.



# SURP Umbrella Unfurling

For almost three decades a Sandia-UNM research program has benefited both institutions. It's now expanding to include other PhD-granting institutions in the state.

The joint-interest program, properly called the Sandia University Research Program (SURP), was initiated in 1957 by President Jim McRae who asked Dick Claassen (now 8000) to set up and oversee the entire program. Dick recalls that at that time the AEC's (DOE's predecessor) Division of Physical Research was in charge of education and training, and that there was a general feeling that university relations should not be a function of the weapon labs. About that time, the late 50s, Sandia had a budget crisis that cancelled several contracts with local suppliers — some of those contracts were with UNM and were cancelled during the academic year. UNM officials asked President McRae for a program to isolate the University from normal budget problems. With the agreement of the Division of Physical Research, Dick established SURP with initial funding of \$100,000 per year.

SURP was, and is, a faculty development program, funded by Sandia, in which faculty members are granted a research contract. The contracts are actually "seed grants" — usually the first grant money the investigator has received.

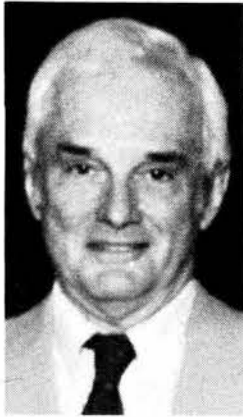
"We were depending on the University to educate our people, and it was clearly to our benefit to have a stronger university," Dick says. "SURP was a perfect opportunity for the University to upgrade its staff. The program was not set up to solve Sandia's immediate problems, but we did stipulate that the research had to be of interest to Sandia. It worked this way: Sandia would review proposals from new faculty at UNM and provide the most promising proposals with enough money to conduct the joint-interest research for two years. In the beginning, the benefits to Sandia were sometimes uncertain, but if the grantee was sharp and took advantage of the program, the University benefited with a better informed faculty member, in a stronger position to obtain research grants from the usual sources.

"A major change occurred about 10 years ago when we urged the University people to find a Sandia mentor for each grantee. This meant that a Sandian was available to the researcher for suggestions and encouragement. It also meant that, because of the real interest shown by the Sandian in the research, the line organization often contributed financial support to the program. Once the grantee completed the two-year program and went on to other studies, he or she still had an important contact at the Labs.

"The program has certainly helped to give some good people a start on their careers," Dick concludes. "I have always felt that the University needed to

take advantage of the people and facilities at the Labs. This interaction upgrades the university and, ultimately, Sandia."

Dick served as chairman of SURP for 10 years and then was a member for an



*"SURP...gave some good people a start on their careers."*

Dick Claassen - 8000

additional 10 years. His replacement as chairman of SURP is Jim Schirber (1150). The other members of the committee are Tom Grissom (2560) and Dick Lynch (6300).

"Dick Claassen carried the ball for years in this program," says Jim. "It's a continuing program — a positive program — and it operates much the same as in the early years."

One change is that SURP now encompasses the three PhD-granting institutions in the state — UNM, NMSU, and NMIMT. It is limited to new faculty members (on the staff for two years or less). The candidate receives up to \$30,000 per year with an additional one year renewal (limit two years). Research is conducted at the university. The grant is just large enough to fund research by a graduate student, pay the summer salary of the candidate, and lessen his or her teaching load during the academic year.

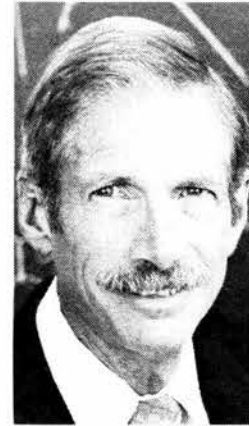
The SURP committee does not "match" a candidate with a Sandia line organization. The candidate must find a technical sponsor at the Labs with whom he or she will work or to whom the research will be of interest. The candidate chosen prepares a proposal that is reviewed by the Sandia sponsor. It is then submitted to the University's SURP Review Committee, which ranks the proposals on technical merit. This rank order is then submitted to the Sandia SURP committee, which ranks the proposals as to Sandia relevance, technical strength, and line organization interest. The Sandia committee then funds as many high-ranked proposals as possible within budget constraints. The concerned line organizations contribute part of the funding, thus augmenting the committee budget. The candidates submit quarterly reports and a final report to their technical representative and the SURP committee.

This year, 14 proposals were accepted — 10 from UNM, seven of which were renewals; and four from NMSU, three renewals. Total funding level this year is \$415,000. The research projects are varied — fundamental research, develop-

ment, computer-related, physics, chemistry, and engineering. Vice presidencies represented in this year's contracts are 1000, 2000, 6000, and 7000.

"The program is viewed by the schools as very successful and positive," Jim says. Spinoff benefit for the schools is that once the SURP contract is completed, the investigator is often able to obtain additional grant money from other sources, usually an amount larger than the original SURP amount. "For Sandia," Jim says, "there are many cases of spinoffs and extended collaborations. Two examples are Rod Ewing, past chairman of the UNM Geology Department, and Frank Williams, chairman of UNM's Chemical and Nuclear Engineering Department, who continue to interact strongly with Sandia scientists and technical organizations."

Jim is a member of the Joint Working



*"... a national R&D Lab and a major university can interact for mutual benefit."*

Jim Schirber - 1150

Group on Education committee, chaired by Dick Schwoebel (1800) [see JWG article], and will oversee the mechanism of the Joint Appointment Program, thus creating the new title of "SURP Umbrella."

"SURP has been in existence for almost 30 years" Jim says. "And it proves that a national R&D Lab and a major university can interact for mutual benefit."

## Education Programs Reviewed by Mid-Management

All of Sandia's education programs were recently scrutinized by the ad hoc Education Programs Review Committee, a cross-section of directors and department managers. The EPRC, chaired by Everet Beckner (6000), suggested some wide-ranging changes (see "Education Programs Do a Good Job"), which have now been approved by Small Staff. Other members were:

Curtis Hines (330), Jim Powell (1230), Dick Schwoebel (1800), Ray Bair (2110), Harry Saxton (2500), Bob Garcia (3500), Glen Otey (5160), Don Schueler (6220), Herman Mauney (7260), and Rick Wayne (8400).



*"... technical excellence grows when a university and a technical community are mutually supportive."*  
George Dacey - 1



*"We couldn't be more pleased with the programs and collaborative efforts."*  
Tom Farer, UNM President

**Dacey, Farer on Lab-University Relationships**

# Creating a Climate For Excellence

Call it understanding, harmony, or a meeting of the minds, but Sandia President George Dacey and UNM President Tom Farer happen to agree on the importance of a good working relationship and a bond between their respective institutions.

"It's true that Mr. Farer's views and mine are very similar when it comes to augmenting our continuing relationship," says Dacey. "It's also important that the DOE has established precedents in a number of places, including the science alliance in the Tennessee corridor, for corporate agreements between universities and national laboratories. This permits new directions for joint professorships and for arrangements with work sponsored by national laboratories that's synergistic with university requirements.

"Research, development, and technical institutions thrive if they have good relationships with first-rate universities. The areas of most rapid growth in technology in our country are places like Silicon Valley, Route 128 in Boston, and the Research Triangle in North Carolina. All of those areas have grown in terms of their R&D concentration as a result of working with the local universities — Stanford, Harvard, MIT, and the University of North Carolina.

"In our state, UNM, New Mexico State, and New Mexico Tech are very important to us in different disciplines. One reason is the general atmosphere of technical excellence that grows when a university and a technical community are mutually supportive. Another reason is that we do look to the universities for our employees; we're looking for the best — and so the better the universities are, the better their graduates will be. Before and after our people are hired, they are interested in the general intellectual climate as well as the availability of additional study opportunities. So a first-rate university in your backyard or in your state is good for them — and good for the Laboratories.

"The establishment of coordinating committees between the universities and ourselves is an important aspect of an on-going relationship. We are going to be

meeting both their growth objectives and our research and development needs."

"We are all fortunate to find ourselves in this rewarding win-win situation," says UNM President Farer. "Ultimately, of course, it is not only the institutions that win but the research community, the citizens of New Mexico, and the nation. We couldn't be more pleased with the programs and collaborative efforts we have at the moment and the tremendous potential for the future."

## Who's in Charge Here Anyway?

**SANDIA EDUCATION COMMITTEE (SEC)**  
Everet Beckner (6000), chairman  
Oversees all education programs at Sandia

**ON-PREMISES EDUCATION COMMITTEE (OPEC)**  
Harry Saxton (2500), chairman  
Oversees almost all on-premises education programs:

- INTEC  
Educational aspects of the apprenticeship program
- Vendor computer courses/ISAC
- Office automation and word processing
- TIE
- TA Trainee

**UNIVERSITY PROGRAMS EDUCATION COMMITTEE (UPEC)**

Dick Schwoebel (1800), chairman  
Oversees all university-based programs:

- EAP (degree and nondegree — includes In-House Dissertation Program)
- OYOC
- SMMP
- SED
- UPT
- DSP

**MANAGEMENT DEVELOPMENT COMMITTEE (MDC)**

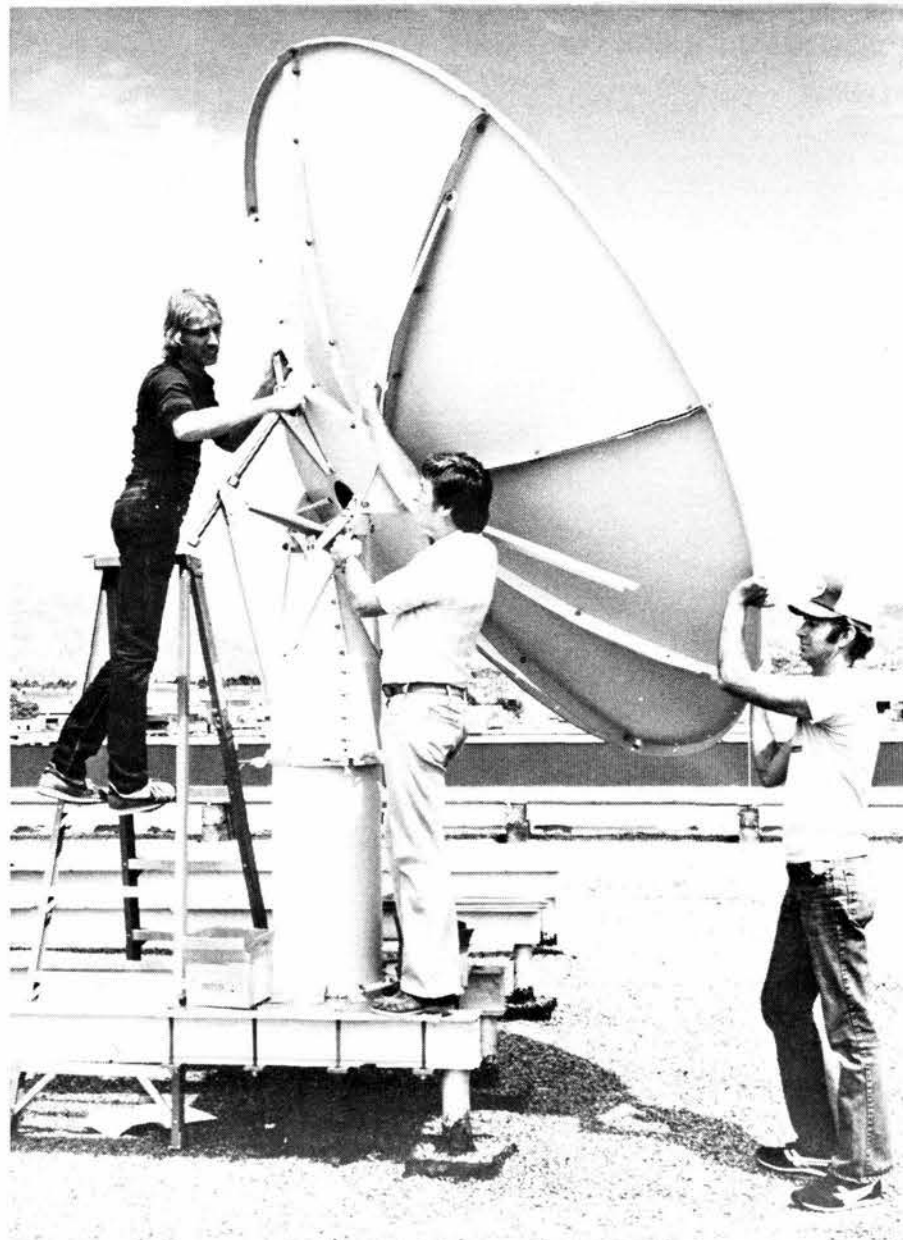
Bob Garcia (3500), chairman  
Oversees management and staff development programs:

- Executive Development
- Middle Management Training
- Supervisory Training

**JOINT APPRENTICESHIP COMMITTEE**  
Apprenticeship Program

**OTHER PROGRAMS**

- INCLAS (new program to be evaluated 1/86)
- Out-of-Hours
- Stanford ITV
- ILC & Home Study
- Math & Science Liaison
- Secretarial Skills Building
- Clerical Work Training



SATELLITE RECEIVER symbolizes a new era in in-house education. The dish will allow Sandia to receive courses from the National Technological University; eight to twelve MS-level engineering courses, all from major universities, will be offered this fall, and the number is expected to grow rapidly. Here, Don Morrow (3522; center) helps suppliers install the receiver on the roof of Bldg. 892.



## Welcome

### Albuquerque

Roberta Gabaldon (3426)  
Darlene Leonard (22-2)  
Mikki Loos (22-2)  
Joann Painter (22-2)  
Eugene Polito (3426)  
Charles Vigil (3426)

### Arizona

Lindy Brigham (2629)

### California

John Torczynski (1512)

### Florida

Donald Potter (1633)

### Indiana

Vernon Nicolette (6447)

### Kansas

Dennis Lierz (5311)

### Louisiana

John Patterson (1251)

### Massachusetts

Christopher Roan (3743)

### Ohio

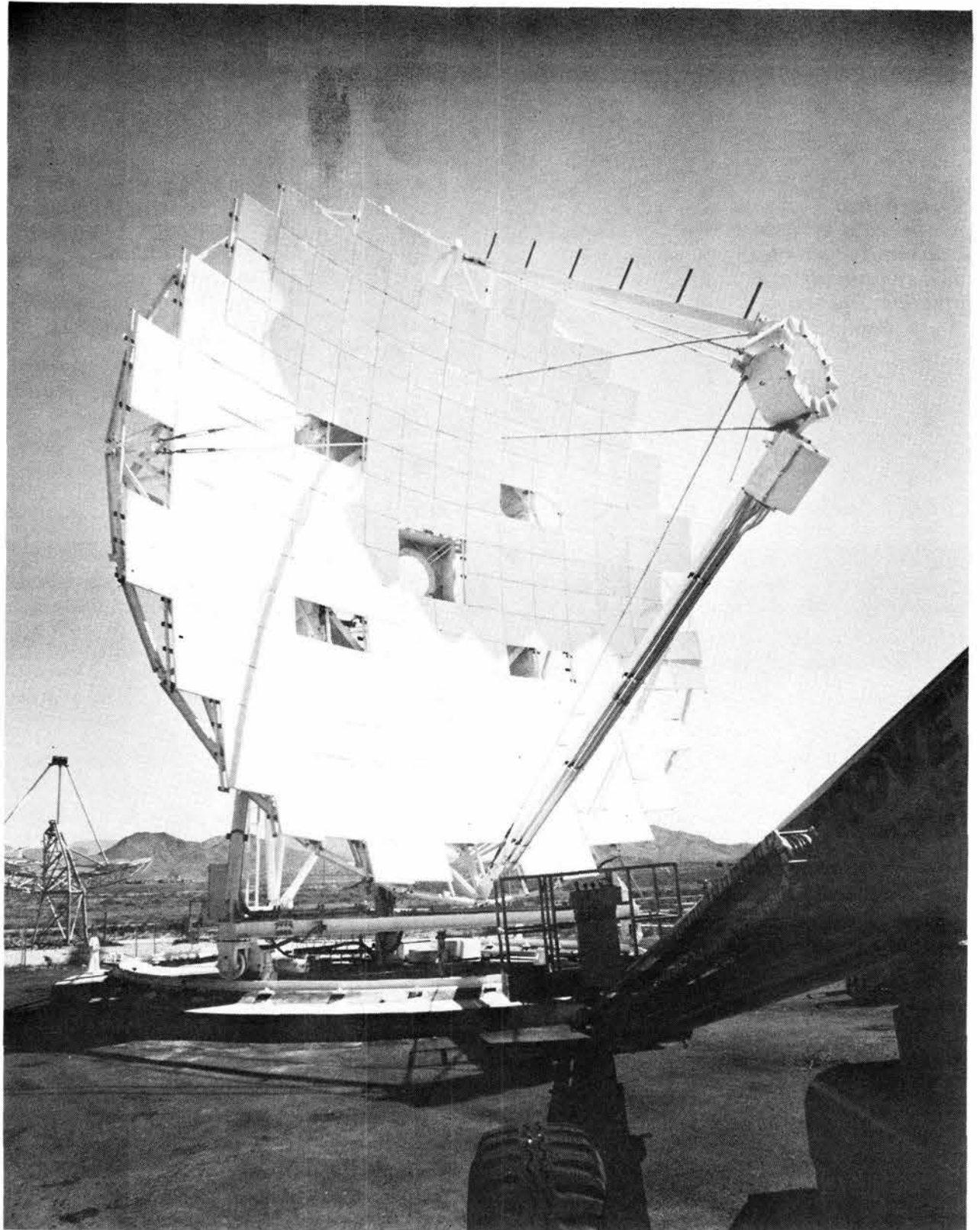
John Fellows (324)  
Stephanie Gulling (2853)  
Roger Showalter (5261)

### Texas

Weldon Outlaw (7841)

### Utah

Michael Partridge (5145)



THIRD PARABOLIC DISH solar concentrator was installed last week at Sandia's Solar Distributed Receiver Test Facility near the Power Tower site south of Area III. The 11-metre-diameter concentrator contains 220 individual curved mirror panels and has a 17,000-sun concentration capability. It is identical to the first parabolic dish transferred last year from JPL to Sandia as part of DOE's solar-thermal distributed receiver program. Project leader Chris Cameron (6222) reports that by late 1986 five additional solar concentrators from commercial suppliers will be installed and undergoing evaluation at the facility. Mike Quintana (6222) directed installation of the parabolic dish.



FRIENDLY NEIGHBORHOOD SCARECROW guarding the sanguine garden plot south of Bldg. 839, headquarters for Ike Gutierrez's custodial crew (Section 3426-1), is the work of George Coleman, left, and Vicki Neill. Vicki sculpted the scarecrow's head from foam rubber discarded from a computer crate. The well-protected garden, planted last April, has all standard garden vegetable varieties plus some jalapeno and "yellow-hots" chile. The plot is tended in the early hours before work and during noon breaks by Joe Melograne, Luis Mares, Carla Minichello, and Dru Summey (all 3426).

## Retiree Deaths

(April through June 1985)

Mike Lettrich (69)	April 1
Jim French (77)	April 3
Juan Gallegos (81)	April 4
Frank Maloney (66)	April 10
Beatrice Haines (70)	April 12
Matilda Pierce (55)	April 18
Dalton Savage (65)	April 19
William Deely (70)	April 20
James Culver (79)	April 28
Mildred Austin (74)	May 8
Ralph Lepore (84)	May 13
Parker Burns (81)	May 14
Ruperto Jaramillo (61)	May 16
Albert Fite (65)	May 16
Nelson Weidman (71)	May 18
Dennis Sparger (74)	May 21
Eutimio Romero (78)	May 26
Daniel Aquino (80)	May 28
Cloy Knock (77)	June 7
James Grund (56)	June 13

## Congratulations

Ken (2542) and Ruth (3150) Varga, a daughter, Sera Beth, June 12.

Dave (2858) and Sherry Nichols, a son, Jeremy Kyle, June 29.

Karen Robinson (6331) and Dick Bild (1821), a son, David, July 4.

Curtis Domme (7862) and Nora Bess Campbell (1821) married in Las Vegas, Nev., July 5.

Jean Gallegos (3321) and Henry Lopez married in Las Vegas, Nev., July 5.

Dennis (1522) and Theresa Flanagan, a daughter, Margaret Jane, July 3.

## Sympathy

To Jack Burt (2857) on the death of his mother in Albuquerque, June 27.

To Joe (7474) and Barbara (2124) Macias on the death of their infant son, July 1.

To Ann Riley (7262) on the death of her son in Albuquerque, July 8.

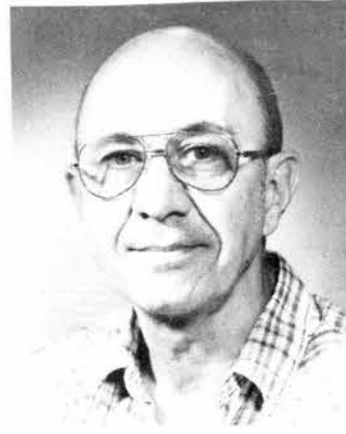


# MILEPOSTS LAB NEWS

JULY 1985



Bob Blount (150) 35



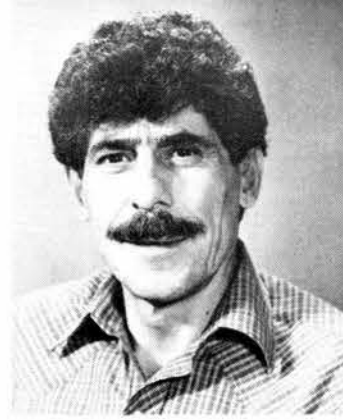
Frank Daut (2544) 35



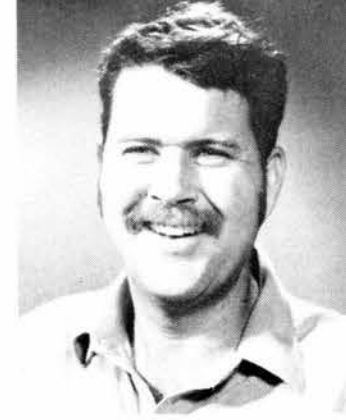
Charlie Salazar (7481) 25



Jim King (7400) (BTL 32) 20



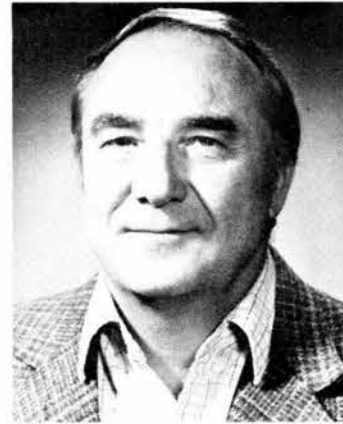
Nicholas Martinez (3154) 10



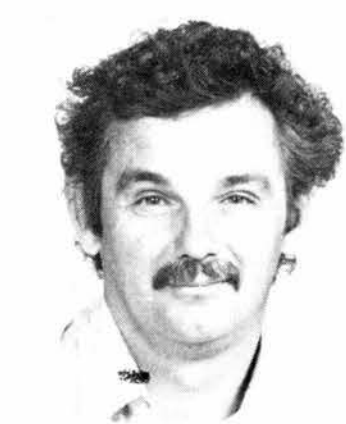
John Taylor (311) 10



Bill Ulrich (5114) 30



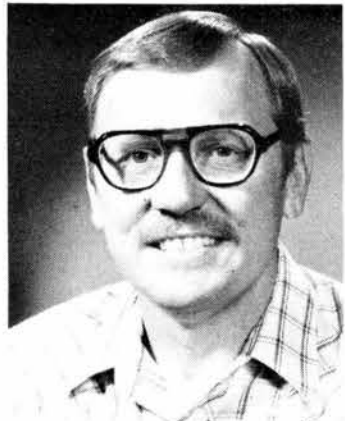
Bruce Wickesberg (2314) 30



Bob Tirnetta (8257) 20



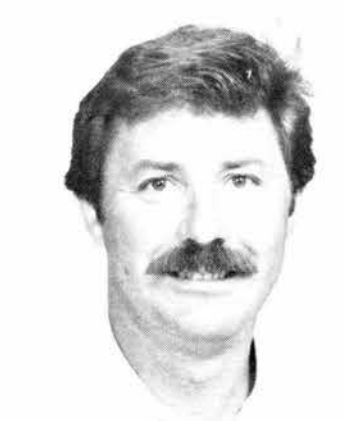
Gene Emerson (6431) 30



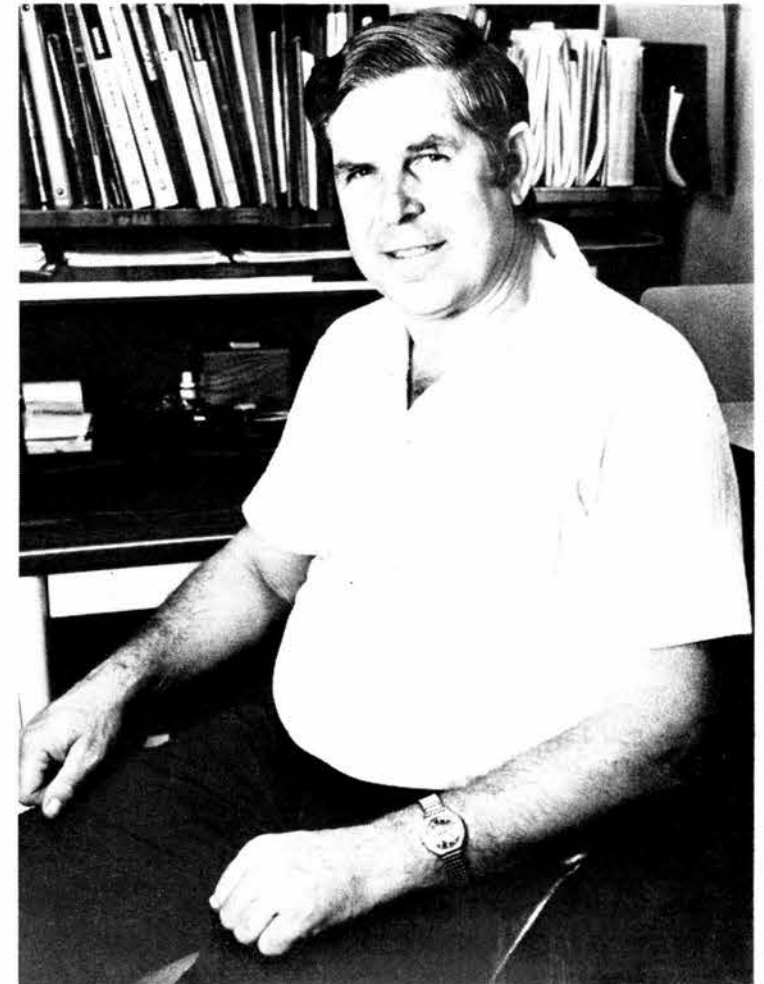
Rich Ashbaugh (5213) 25



Jerry Slusser (7132) 25



Steve Vasey (8164) 15



Jerry Rohwein (1248) 25



Bob St. Hilaire (8445) 20

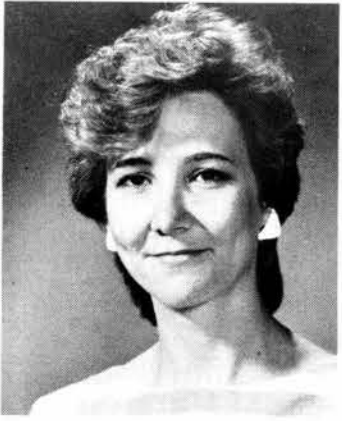


Jay Gilson (8130) 30

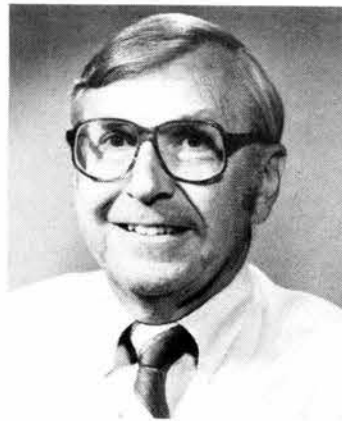


Dave Dent (8443) 10





Billie Jojola (3314) 10



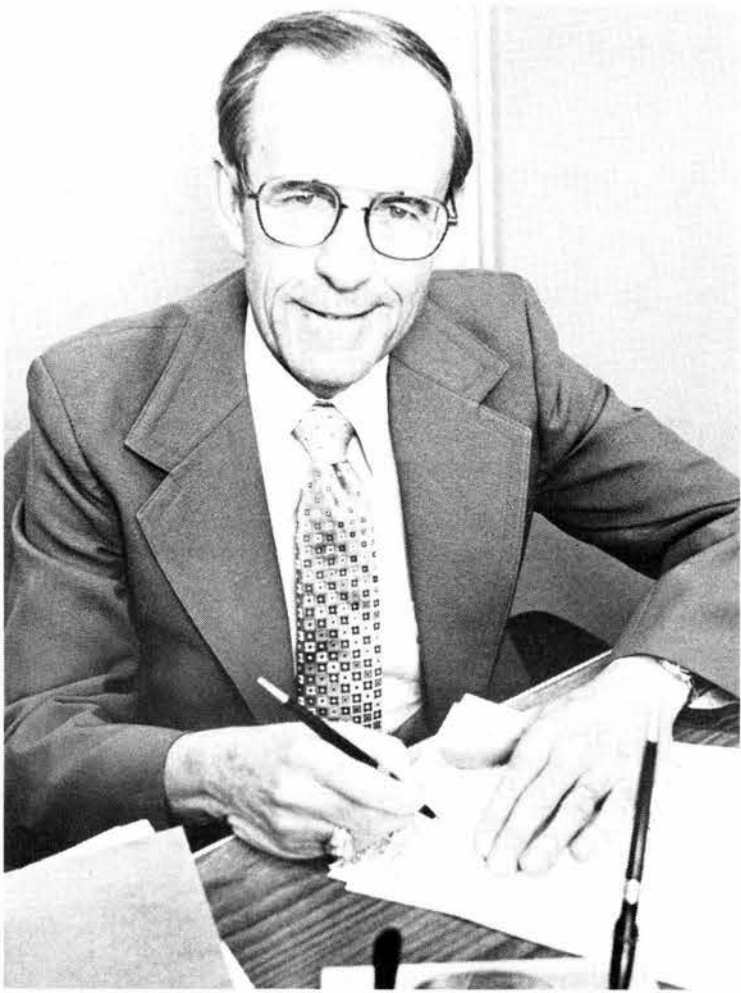
Dave Bickel (7535) 25



Pat Walter (7545) 20



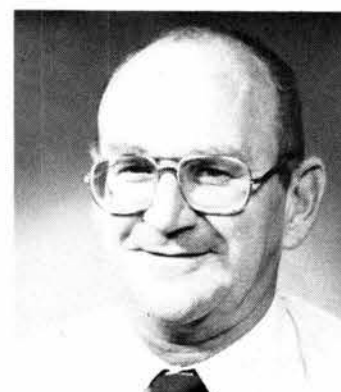
Paul Stokes (310) 25



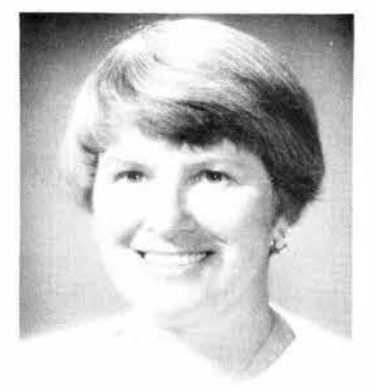
Bill Thomas (7251) 40



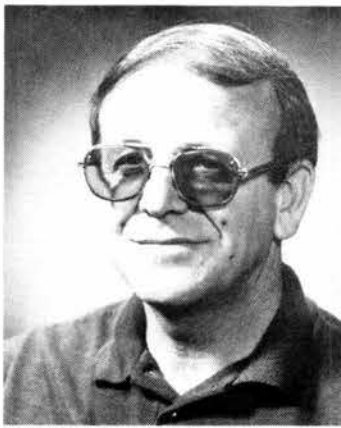
Jim Cheykaychi (7242) 10



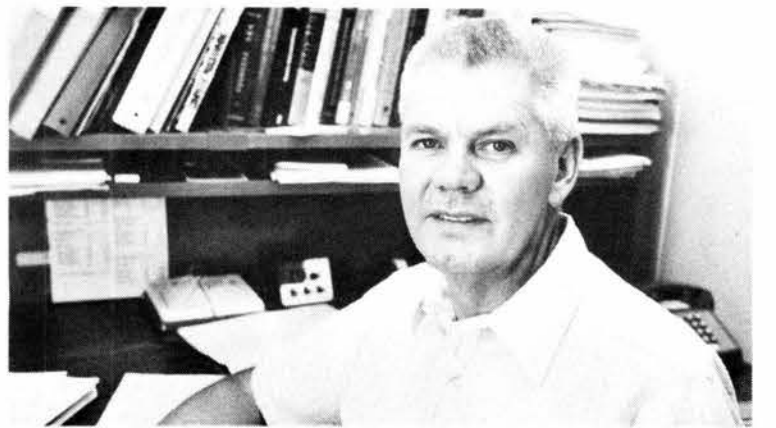
George Stone (312) 25



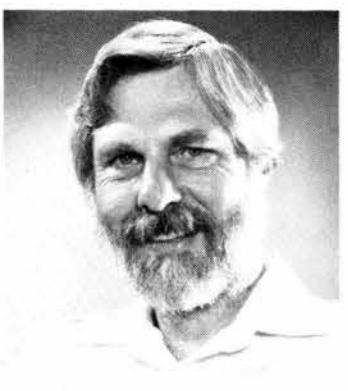
Jean Gaeddert (3544) 30



Johann Seaman (1252) 15



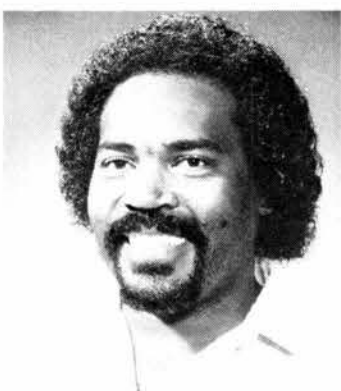
Don Gunderson (5112) 25



Bruce Hawkinson (3162) 20



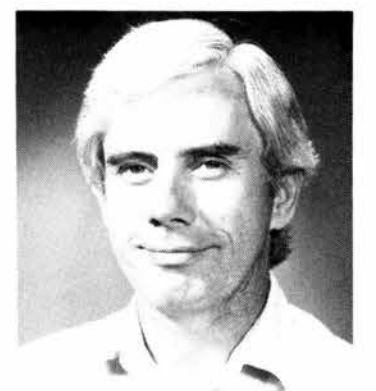
Billy Yates (3461) 35



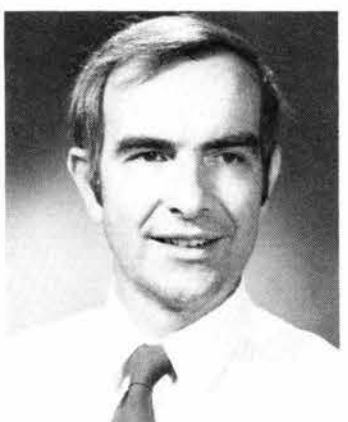
Edward Canty (3423) 10



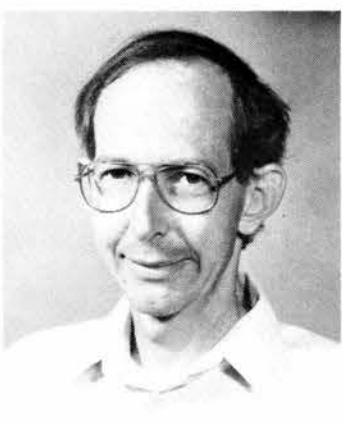
Bill Ashurst (8363) 20



Bob White (2121) 20



Dick Hay (7172) 20



John Freeman (1241) 20



Wada Michi (2113) 10



Eldon Frame (7266) 30



## Fun & Games

**Soccer**— Anyone interesting in joining a new SERP-sponsored soccer team to compete in the Albuquerque Soccer League's third division is urged to contact John Stachan (6222), 4-4141. League play is from September to May with games and a practice session held once a week.

## Singles' Science Suffers



... "The unfavorable position of women in science is usually explained either by the 'biological myth' that women innately lack the capacities for scientific work, or by the 'motherhood myth,' according to which the demands of a scientific career are incompatible with marriage and children. The former 'explanation' doesn't even merit refutation; the latter, however, deserves some consideration.... Comparison of married and single men and women scientists suggest that there is no compatibility between a scientific career and a family as such.

On the contrary, marriage seems to have a positive effect on the professional life of women scientists. As one scientist put it, 'The biggest effect of marriage is to eliminate the disturbing influences of external factors. Dating would take up too much time and energy....' Marriage thus creates stability and 'routinization of work patterns'— an aspect pointed out... as an explanation for the differential publishing rates of married and single scientists."

Terttu Luukkonen-Gronow & Veroica Stolte-Heiskanen in *Acta Sociologica*

## UNCLASSIFIED ADVERTISEMENTS • UNCLASSIFIED ADVERTISEMENTS • UNCLASSIFIED ADVERTISEMENTS • UNCLASSIFIED ADVERTISEMENTS

**Deadline: Friday noon before week of publication unless changed by holiday. Mail to: Div. 3162.**

### Ad Rules

1. Limit 20 words, including last name and home phone.
2. Include organization and full name with each ad submission.
3. Submit each ad in writing. No phone-ins.
4. Use 8½ by 11-inch paper.
5. Use separate sheet for each ad category.
6. Type or print ads legibly; use only accepted abbreviations.
7. One ad per issue per category.
8. No more than two insertions of same ad.
9. No "For Rent" ads except for employees on temporary assignments.
10. No commercial ads.
11. For active and retired Sandians and DOE employees only.
12. Housing listed for sale is available for occupancy without regard to race, creed, color, or national origin.

### MISCELLANEOUS

TYPEWRITER, electric 14". Richardson, 1-864-3575.  
 CRAFTSMAN gasoline chain saw, 3.7 cu. in., 18-inch bar, best offer. Jones, 822-1194.  
 QUEEN waterbed, dark brown corduroy covered, less than one year old, heater, vibrator, 3 sheet sets, pedestal, etc., \$400. Fowler, 831-0019.  
 THREE Santa Fe Opera tickets for performances July 30-Aug. 3. Levin, 897-7145.  
 SEWING machine, Kenmore w/cams & all attachments, \$100; vinyl folding door, \$5; wood paneling, doors, shelf brackets, make offer. Mozley, 884-3453.  
 SINGLE bed, Sears maple w/box springs; insulated drapes-green for patio, blue for window; twin bedspreads; chandelier. Kellogg, 299-3737.  
 UNDERWOOD typewriter 565, electric, \$130 OBO. Boettcher, 881-7124.  
 WOOD beams, 3 ea. 6"x6"x20", 1 ea. 6"x8"x18", \$0.30 per board foot; carpentry tools. Dross, 836-3860.  
 NEW studio couch, corner type daytime couch, nitetime w/separate arm cushions, cost \$250, sell \$125. Arana, 299-1214.  
 4000W Onan generator 120/240 industrial. Cooper, 255-4725.  
 FRENCH Provincial bedroom set, double bed, mattress, box springs, canopy, night stand, dresser, desk, chair, \$250 firm. Tidmore, 884-1870.  
 USED metal patio cover, approx. 10x12-15, 1' overlapping strips, 3 wrought-iron posts, \$60; GE under-counter dishwasher, needs work, free. Hawley, 299-2516.  
 BOOKSHELF speakers, pair, Realistic Solo-4, oiled walnut cabinets, 16"h, 6"w, 8"d, 5"x7" element w/whizzer cone, \$30. Schkade, 292-5126.  
 SONY shortwave w/digital frequency display, \$400 new, asking \$250; .22 Ruger Mark II Semiatu target pistol, \$160. Dodson, 832-6950.  
 OVERSIZED twin bed w/brass headboard, \$80; Mediterranean wood/glass coffee table, \$25; roll-away bed, \$45; Kenmore upright vacuum cleaner, \$18; collection of Sarah Coventry jewelry. Ahr, 883-0459.  
 LIGHT kit, ceiling fan, 4 lamp w/dimmer,

brass, for 52" Casa Blanca, never unpacked, new \$65, selling \$35. Plummer, 296-4327.  
 GE STEREO console-record player, reel-to-reel, AM/FM radio, \$50; Sound Design stereo/speakers, \$35; cat/animal trap, \$10. Bliss, 296-3752.  
 FREE to good home w/running room pure-bred Irish Setter. Kibler, 897-1069.  
 OILED walnut buffet, dropleaf table, six chairs, \$300; round 30" solid brass tray/wrought iron stand 18" high, \$87. Hodgden, 883-4752.  
 AKC Siberian Husky puppies, blue eyed, 5 weeks old, male & female. Puccini, 255-0568.  
 D-41 Martin guitar w/hard case, left handed, \$1400. Perryman, 281-3020.  
 GOLD wedding ring w/cubic zirconia (looks like diamonds), cost \$250, sell \$135. Mueller, 821-6391.  
 COLOR TVs: tube type, RCA 14", \$75, GE 10", \$60. Graham, 293-2449 after 6.  
 KROEHLER bedroom furniture: twin bookcase headboards, dbl. dresser, desk, box springs, quilted bedspreads, new matching sheets, pillow cases, \$550. Adams, 881-4351.  
 4 TRUCK rims, fit Ford-5 lug, \$30 OBO; headboard for queen size bed, \$5. Bailey, 821-4394.  
 EX-CELL 11½' camper, shower/toilet, stove w/oven, dbl. sink, 3-way refrig., furnace, hot water heater, queen size bed over cab. Beller, 881-4047 after 5.  
 ALBUQUERQUE Sunset Mausoleum niche 234D double urn, eye level. Half price. C.H. Maak, 2734 South Oak, Wichita KS 67217.  
 COMBINATION dinner table, card table, bumper pool (balls & cue sticks), \$300. Trujillo, 865-5438.  
 CLARINET, Bundy (wooden) w/case, \$150; viola, Roth, \$200. Zanner, 281-1789.  
 CALCULATOR, TI Business Analyst model, port. w/AC adaptor, case & owner's manual, \$25. Barr, 821-5870.  
 COMMERCIAL tow bar, \$75; 2 mobile home axles w/tires & rims, \$135. Wilson, 299-1480.  
 '83 KOMFORT 40' travel trailer, tip-out, dual A.C., W/D hook-up, storm windows, leveler blinds, rollout awning. Daut, 255-2529.  
 BACKBOARD support, 3" by 15' long steel pipe w/welded cross brackets for basketball goal, free, you haul. Hartman, 884-7850.  
 FOUR 33x12.5x15 B.F. Goodrich All Terrain tires on 10x15 chrome spoke rims, \$225 for all. Nelson, 881-0148.  
 NEW tire, H78-15, on 6-hole Chevy rim, \$50. Shunny, 265-1620.  
 GENERATOR, 3000 watt, Winco w/Kawasaki engine, \$400; Sears 1 hp centrifugal pump, \$125. Graving, 865-5581.  
 FREE female dog to good home, Shepherd Shelly cross, spayed, house trained, 2 yrs. old. Bonahoom, 296-4450.  
 DIAMOND dinner ring, 14K gold leaf design, 10 stones totaling 1 carat, recent appraisal, \$1600, sell \$800 OBO. Schneider, 897-0565.  
 RADIO SHACK TRS80 Model 1 computer, full system, printer, 2 disks, extra monitor, modem, table, books, magazines, manuals, & more, lots of software. Barnette, 292-5186.  
 QUEENSIZE hide-a-bed couch, beige, avocado, turquoise floral pattern, \$60. Bishop, 836-6219.  
 PHONE, push-button, 10 number memory, redial, mute & volume buttons, \$29. Norwood, 292-0072.  
 TWO-PERSON inflatable boat w/oars, \$15; new Gortex Bivy tent, \$80;

new pack frame & bag, \$70. Klett, 884-8354.  
 DRUM SET (5 drums, 2 cymbals), \$125; Spanish style divan, brown, 8', \$150. Burchard, 294-3557.  
 GUITAR, Guild 12-string steel, \$400; amplifier 130/130w/stereo, \$200; audio mixers, Teac, \$175, or Realistic, \$35; party beacons, \$65. Barham, 298-7304.  
 CABOVER camper, 8' narrow bed, \$800. Long, 296-2590.  
 KENMORE gas dryer, 7 mos. old, still under warranty, \$300 OBO. Pilcher, 299-2850.  
 CASSETTE tape deck (Technics), Dolby "B/C"; fluorescent meters w/peak hold; metal bias; cost over \$175, sell \$85. Chapman, 296-4321.  
 CRIB; potty chair; diaper pail; stereo; pillow ottoman; surveyor's tripod; elec. fan; 15" tires; rims; fender-mount mirrors. French, 293-3451.  
 GARAGE DOOR, split panel galvanized steel, 2 ea., 7'x8' w/accessories, \$15 ea; 4 ea, 15" auto hub caps, stainless steel. Moyer, 881-0754.  
 DESK, metal office, 30"x60", lt. green, \$80. Brower, 298-2254.  
 WINDSURFER w/65 sq. ft. mylar sail, adjustable length booms & mast, fully retractable centerboard, footstraps. Ritchey, 268-7620.  
 BROYHILL sofa, textured fabric, \$200; tan arm chair, vinyl, \$75. Esterly, 296-9759.  
 TURNTABLE, Ariston RD-11s w/Grace 840F tonearm, new motor, \$350. Harrell, 296-4927.

### TRANSPORTATION

HOBIE Cat, 16ft., Tequilla Sun Rise Sail, yellow pontoons, life jackets, \$2500. Heidrich, 345-7653.  
 '68 PONTIAC Bonneville, no AC, 6-way power seats & power antenna, 428 cu. in. engine, \$400 OBO. Downie, 293-1039.  
 '81 VW camper van. Richardson, 1-864-3575.  
 '78 SUZUKI GS750E, recovered seat, new rear tire, \$900. Greene, 345-9156.  
 '82 HONDA Goldwing Interstate, wine-berry red, low mileage, extras, \$7000 OBO. Miller, 296-5015.  
 '77 VW Rabbit, 2 door, 4-spd., 75K miles, blue sport paint, \$1300 OBO. Kanuika, 293-3834.  
 '68 FORD tailgate, never used, removed when new, \$85 OBO. Boettcher, 881-7124.  
 '77 TOYOTA Celica GT 5-spd., cruise-control, AC, AM/FM, cassette stereo, new upholstery, clutch, brakes, tires, alternator, \$2400. Gomez, 821-0685.  
 '58 CADILLAC, parts car, \$100 OBO. Weems, 281-5837.  
 '69 SS RS Camaro, all options, stored 8 years, 29K miles, taking offers. Mertens, 298-1302.  
 '76 CHEVY Nova, 4-dr., AT, AC, PB, PS, \$1275. Keese, 299-1327.  
 '76 VW Rabbit, \$700 OBO. Christopher, 298-4826.  
 '72 PLYMOUTH stn wgn, 8 passenger, PS, PB, AC, new tires & battery, \$1100; '72 Chevy Nova 50K miles, \$1100. Berman, 296-5640.  
 '80 DATSUN 310 GX, front wheel drive, 4-door hatchback, AC, AM/FM, one owner, \$2650. Burd, 884-9133.  
 SCHWINN Continental bicycle, 10-speed, fenders optional, \$800. Magnuson, 821-5330.  
 '82 YAMAHA 750 Virago, shaft drive, 2 Simpson helmets, saddle bags, manual, spare parts, \$1600. Bishop, after 6, 822-8295.  
 '79 HONDA CM-400T, 7K miles, kept in garage, windshield, crash bars, pegs & cruise control, \$875. Perryman, 281-3020.  
 '71 DATSUN, SW, needs engine,

\$225; 2 Subaru wheels \$3 each. Bauhs, 281-2688.  
 '68 VOLKSWAGEN fastback, rear body damage, \$600 firm. Bosworth, 869-6949.  
 '75 DODGE Dart, seized 225 slant six, \$500 OBO. Konopka, 268-4089.  
 '83 MERCURY Lynx, one owner, 30,500 miles, 4-spd., 2-dr., tan, AM/FM stereo cassette. Gregory, 268-2022.  
 '85 YAMAHA Tri-Z 250 3-wheeler, water cooled, fast, low hours, \$1700. Peeples, 877-3942.  
 '54 CHEVY pickup: 7-window cab, 235 6-cyl., 3-spd. on col., 6v, all original, new paint, \$2100. Carr, 281-1632.  
 MAZDA RX7 GS 5-spd., 29K miles, mag wheels, AM/FM stereo, AC, \$5800. Duimstra, 293-8235.  
 '74 DODGE Colt wgn., 4-spd., 25 mpg in town, one owner, \$400. Blejwas, 294-2057.  
 '81 HARLEY-DAVIDSON FXEF Super-glide, blue, 13,600 miles, lots of extras. Graving, 865-5581.  
 '76 PLYMOUTH Volare, 65K miles, one owner, V8, AC, AT, AM/FM, cassette, PS, PB, \$1500. Owen, 294-6181.  
 '78 BMW 320i, one owner, AC, alloy wheels, AM/FM cassette, Sierra biege, \$6100. Otteni, 266-5059.  
 '73 MGB w/fiberglass HT & tonneau cover, \$2600. Byars, 294-6676.  
 '76 CHRYSLER Cordoba, one owner, maint. records available, 105K miles, \$1950. Fleming, 869-3681.  
 '71 RICKMAN Brothers flat-track motorcycle; fresh '73 Triumph 750cc engine, nickel-plated chrome moly frame, \$850 OBO. Bishop, 836-6219.  
 '78 CHEVY Malibu stn. wgn., AC, stereo tape deck, \$2700. Otero, 293-5433.  
 '80 MAZDA GLC 3-dr., 60K miles, \$2200; Suzuki T250, \$100; '80 Vespa, \$990. Burchard, 294-3557.  
 '81 AMC Eagle sport wgn., 4x4, 6-cyl., AT, AC, PB, PS, cruise, & more, consider trades. French, 293-3451.  
 '72 CHEVY ½-ton stepside pickup, 6-cyl., 4-spd., w/camper shell, approx. 15K miles since total rebuild, \$1650. Evans, 299-7105.  
 '73 VW pop top camper, new engine, new tires, \$1995 OBO. Davis, 298-1957.  
 '84 CHEVY conversion van, 305 CID engine, everything including rear heater & AC, extended 4-yr. warranty, 5K miles. Grosbier, 881-1958 after 5.  
 '78 SUBARU 4-wd. wgn., ski rack, AM/FM cassette. Ritchey, 268-7620.  
 '84 318i BMW, limited slip, snow tires, loaded, \$15K. Johnson, 292-6557.  
 FOLDING bicycle, "Staiger", 185; Reese equalizer bars, 750 lb., \$40. Johnson, 255-5427.  
 SCHWINN Collegiate boy's bicycle, 5-spd., 20" frame, \$75. Henderson, 884-8309.  
 '76 VW Rabbit, 2-dr., \$1200 OBO. Fenstermacher, 298-9050.  
 '79 CORVETTE, garage kept, cover, just tuned-up, less than 50K miles, glass tops, loaded, Sikorski, 292-3205.  
 '81 VW camper van. Richardson, 1-864-3575.

### REAL ESTATE

WOODED 2 acres, ¼ mile from Zuzax exit on I-40, view of mountains, 15 minutes from town, \$28K. Greene, 299-2091.  
 MOBILE home, Nu-Way, 14'x75', 3-bdrm, 1½ bath, set-up in 4 Hills MHP, \$8K. Lopez, 296-6813.  
 PLACITAS mountain property, 2+ acres, San Francisco Hills Sub-

division, 6½ miles to freeway, electric to lot, horses allowed, \$14K. Lucero, 867-2011 or 293-3834.  
 PARADISE HILLS, 2400 sq. ft., 3 bdrm/den, courtyard, spa, greenhouse, RV pad, view, owner financing, \$114.9. Trennel, 898-1224.  
 RICO, Colo., townhouse, approx. 1200 sq. ft., \$120K furnished or 1/10 timeshare @ \$15K. Allen, 1-303-967-2804 or 1-505-632-3694.  
 CORRALES custom adobe, 2600 sq.ft., 1.44 acres, brick floors, beamed ceilings, 2 FP's, pool, tennis court, room for horses, views. Schindwolf, 897-0470.  
 TOWNHOUSE, 2 bdrm, 1½ bath w/Jacuzzi tub, assumable loan w/qualifying, 8.71%-11.15%, \$4K down OMO. Gronewald, 242-6072.  
 LAMPLIGHTER 14x71 MH, adult section, 1½ miles from Sandia, \$2K equity, assume \$222.40/mo. Greer, 831-0019.  
 THREE plus bdrms., view, extras, N.E. location, 5 miles from base, below appraisal. Jeys, 298-8989.  
 MOUNTAIN HOME, 3-bdr., 2 bath, on 2 wooded acres, 2500 sq.ft. plus basement, 20 mins. to Sandia, \$115K. Lanes, 281-2369.  
 MOUNTAIN land, 5 acres off N14, views, southern exposure, restrictive covenants, power & water, no closing costs. Zanner, 281-1789.  
 LEVEL one-acre lot in Manzano View Estates, Los Lunas, resticted, hores OK, underground utilities, cash \$15,950. Wallace, 898-4989.  
 MH LOT, ½ acre in Los Lunas, livestock OK, lots of extras. Gillas, 865-6640.  
 3-BDR., 1 bath, sprinklers, fenced yard, lg. single garage, 1006 Dorothy NE, \$55K. Roberts, 293-3786.  
 3-BDR. house, 1540 sq.ft., lg. lt, near Rio Grande HS, new carpet, paint & lawn, low 50s. Riech, 877-2846.  
 ELDORADO area, 11501 Manitoa NE: 4-bdr., 2 bath, redecorated, new carpet, appliances, drapes, gunite pool, open house Sunday 12-5. Sikorski, 292-3205.

### WANTED

ROOMMATE for 3 bdrm., 2 bath, dbl garage home, Juan Tabo/Central area, smoking, most pets ok, \$350/mo., no utilities. Nordeen, 296-7898.  
 2 OR 3 pickup loads of good earth. MacCallum, 281-1534.  
 HAVE BODY: need lens for Nikon EM, prefer normal lens, but will buy wide angle. Ball, 344-4373.  
 RANGE, elec. built-in, 30" wide, approx. 33" high, oven above pull-out drawer for burners. Roth, 881-3824.  
 PORTABLE 8-track cassette player, battery-powered. Matlack, 256-7371.  
 SUMMER FACULTY employee & wife need furnished house or apt. for remainder of summer. Baumgarten, 821-1225.  
 OYOC student and her dog desire to house-sit from late Aug. through early Sept. Miller, 898-2778.  
 INEXPENSIVE 8'x30 to 35' Spartan, Airstream or similar trailer suitable for winter time park use. Souder, 281-3121.  
 REAL ESTATE, good view lot in Sandia Heights. Schroeder, 344-1011.

### SHARE-A-RIDE

RIDE wanted to the Craddock Bldg. from the Candelaria/Morris area until end of Aug. Mangold, 294-5638.

### WORK WANTED

HS senior desires babysitting and/or house sitting employment during Aug. Kubiak, 265-6525.



# Singles Mingle July 25

TONIGHT, the TGIF crowd gathers right after work to meet and relax in the main lounge, in the ballroom, and in the pool and patio area. We've reached the midpoint of a long, hot summer, but it's nothing that a tall cool one can't fix. Dinner tonight in the dining room is another two-for-one special: either prime rib or poached halibut, two dinners for \$12.95 served between 6 and 9 p.m. The Isleta Poor Boys play country and western music for dancing from 8 until midnight. Call 265-6791 right now for dinner reservations

ON MONDAY, July 22, a travel program and slide show on Scandinavia will be presented at 7:30 p.m. in the ballroom. Speakers are Ed (2361) and Lu Neidel. The Club travel committee maintains a file of travel literature in the Club lobby including details of a number of upcoming Club-sponsored trips. You can sign up at the office.

Also, if you'd like to share your travel slides and experiences at a Club meeting, call Marv Plugge (5171), travel committee chairman, on 6-3381.

A FINANCIAL SEMINAR on retirement planning (income averaging, investing in IRA rollover accounts, and special tax considerations) is set for Wednesday, July 24, starting at 5 p.m. in Rm. B-4. Speakers are Steve Stubbs and Norm Chavez of Dean Witter Reynolds, Inc. Admission is free.

THE WORD is getting around to singles that the Coronado Club singles sessions are a good place to be. Another event is scheduled Thursday, July 25, in the ballroom starting at 5 p.m. There'll be free munchies and goodies, beer and margaritas for 50 cents, and Dunn's Dancing Machine making music. There's no admission charge, so get on over there.

NEXT FRIDAY, July 26, puts an extra zinger into the standard Friday night activities. Here's the way it works: right after work, members bring a non-member friend around to the pool and patio area for a little free beer, munchies, and socializing. Club board members will be on hand to explain all the advantages of Club membership starting with — get this — a discount of \$5 off annual dues for new members plus — this is extra — pool and patio tickets at about half price for the remainder of the summer.

After you've signed up all your non-member friends, then make it into the dining room and enjoy two-for-one special dinners. Your choice of two filet mignon or fried shrimp dinners goes for \$12.95. Bob Weiler's Big Band Sounds will be in the ballroom. Please call 265-6791 for dinner reservations.

THE CORONADO WOLFPACK (a Club-sponsored group of Lobo sports fans) has



PIXIE THE CLOWN, aka Cindy Gregory (6411), will instruct a clowning class sponsored by SERP and the Coronado Club (this is one way to get entertainers) starting Aug. 6. The eight-week class will meet Tuesdays at the Club from 6 to 8 p.m. in Rm. B-5. Cindy will cover makeup, costuming, juggling, skits, etc. She's performed professionally and instructed comedy classes in Albuquerque for the past seven years, and is the author of a book, *Clowning — A Truly Hot Act*. To enroll, call the SERP office, 4-8486.



booked a charter bus to attend the UNM-Texas game Sept. 7-8, staying overnight at the Ramada Inn in Lubbock. Cost is \$75 for non-Wolfpack members. A second option is offered: fly on to Dallas for the Dallas-Washington game Sept. 9 and spend two nights at Grenelefe Hotel in Dallas for another \$280. For details, call Ken Deller (5322), 4-6776.

CORONADO CLUB BOWLERS are organizing for the upcoming season. The adult Coronado Club mixed bowling league meets tonight at 6 p.m. in the El Dorado room. New members are welcome. The group bowls at Sandia Bowl on Wednesdays at 6:15. League play starts Aug. 28.



"UP THERE is where the solar radiation is concentrated on the receiver," says John Otts, supervisor of Solar Thermal Test Facility Division 6222, to Wyche Fowler (left), U.S. Representative from Georgia and a member of the House Ways and Means Committee. John briefed Fowler on Sandia's solar thermal programs during a tour of the Central Receiver Test Facility. Earlier Tom Cook (20) introduced Fowler to Sandia's mission and programs.

Coronado Junior Bowlers hold an organizational meeting Wednesday, Aug. 7, at 7 p.m. in the El Dorado Room. Open to youngsters from age seven through high school, the group has a lot of fun and wins a lot of trophies. Seven state trophies will be awarded at the meeting. Newcomers are invited. The group bowls Saturday mornings at Holiday Bowl at 9 a.m. starting Sept. 7.

Cis Kelly (ret.) can answer questions about either group. Call 255-8011.



TOP AWARD given in the field, the Applied Research Award of the US National Committee for Rock Mechanics, went to three Sandians this year. Two related papers were selected: "Determination of Hydraulic Fracture Azimuth by Geophysical, Geological, and Oriented-Core Methods" by (from right) senior author Larry Teufel (1542), Carolyn Hart (6256), and Alan Sattler (6253); fourth author Jim Clark (former Sandian) is not shown. The second paper was Larry's "Prediction of Hydraulic Fracture Azimuth from Anelastic Strain Recovery Measurements of Oriented Core." Both papers deal with the prediction and confirmation of the principal stress orientations at the Multiwell Experiment Site near Rifle, Colo., part of a DOE-sponsored program to extract gas from low-permeability geologic formations.